INFLUENCES ON THE HEALTH-RELATED BELIEFS AND BEHAVIOURS OF SCHOOLCHILDREN: IMPLICATIONS FOR HEALTH EDUCATION

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A thesis in two volumes
submitted to the University of Glasgow
for the degree of Doctor of Philosophy
in the Faculty of Medicine

June 1989
Department of Community Medicine,
University of Glasgow.

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ACKNOWLEDGEMENTS

I wish to express my gratitude to the following, without whose help this project could not have been completed:

- The Scottish Health Education Group for funding the research, and for allowing me free access to their excellent library facilities.

- Strathclyde Regional Council Department of Education for granting me permission to undertake research in their schools.

- The school teachers and school pupils who willingly participated in the study.

- Sarah Mackie, whose practical assistance and enthusiasm throughout the project made the undertaking more feasible and more enjoyable.

- All members of staff in the Department of Community Medicine, University of Glasgow, but in particular: Prof A J Hedley for his supervision during the planning and data collection phases of the project; Mr Harper Gilmour and Mr Keith Murray for their advice on the analysis of the data; and Dr Andrew Tannahill and Dr Robin Knill-Jones for their support and helpful comments on various drafts of this thesis.

- The members of staff in the MRC Medical Sociology Unit in Glasgow, for facilitating the production of this thesis in its final form, and especially to Kim MacIndoe and Gill Sinclair for typing this submission.

My thanks also go to the many others who have provided support and advice at various stages of the project to make my task easier and more enjoyable.

SUMMARY

The project described in this thesis examines the health education taught to children in upper primary school classes in Greater Glasgow, and the health-related beliefs and behaviour patterns of a cohort of 10-12 year old children attending primary schools in the city. Health education practice is assessed in the light of recent recommendations concerning the most appropriate approach and content for health education in schools.

A detailed discussion is presented of the theoretical and conceptual issues fundamental to this area of research. This discussion explores definitions of health and then centres around an examination of various influences on health-related behaviour, concentrating in particular on health education. An attempt is also made to clarify some of the semantic confusion which exists in the literature.

Evaluation of health promotion initiatives is required not only to assess effectiveness but also as a means of improving materials and methods, minimising waste of resources, and examining the approach adopted. Several barriers to the evaluation of health promotion initiatives are discussed. Rigorous experimental conditions are often unattainable in the field; a 'quasi-experimental' approach is often necessary and is, in some circumstances, even preferable. There is a need for the evaluation of processes, rather than concentration solely on outcome. Moreover, outcome needs to be assessed in relation to objectives, which will often be educational rather than epidemiological in nature.

The project described here is comprised of three separate but related studies.

1) Survey of health education in upper primary schools in Greater Glasgow

This survey served as an update of a study carried out by other researchers in 1982. Postal questionnaires were sent to head teachers and class teachers in all 313 primary schools located within Greater Glasgow. Data were thereby gathered relating to the availability and use of materials for health education, methods adopted for health education, and teachers' perceptions of the relative importance of a range of health-related issues. Overall, 89% of teachers had taught some health education during the

school year studied (1985/86), although for 60% of these this involved a total of no more than 20 hours' teaching. More than a quarter of those teaching health education depended solely on 'incidental' methods to do so, and only 16% indicated that their school had a structured scheme for health education. Compared with the findings of the 1982 survey, however, a wider range of topics were being covered, and more teachers were adopting a centre-of-interest or project-based approach to health education. The most widely-used material for health education in the present survey was 'Jimmy on the Road to Super Health' which was used by 44% of those teaching health education. Teachers placed greatest emphasis on the preventive aspects of health education (rather than on the promotion of well-being), and on the physical (rather than the mental or social) facets of health.

2) Study of the health-related beliefs and behaviour patterns of upper primary school children in Greater Glasgow This study involved the participation of 920 children (aged 10-11), in Primary 6 classes in a random sample of primary schools in Greater Glasgow, in the completion of a questionnaire administered in school in 1987. A follow-up study involving the *same* children was carried out the following year. Particular emphasis was placed on the issue of cigarette smoking and on the identification of factors associated with this behaviour. An open-question approach, not previously adopted in studies of cigarette smoking among schoolchildren, was used to investigate what issues were perceived by the children to be important in relation to cigarette smoking, and also what 'being healthy' meant to them.

In Primary 6, 76%, and in Primary 7, 62%, of children reported that they had never smoked a cigarette. There was no significant difference between the proportions of boys and girls who had tried smoking, although those boys who had tried had generally done so at a younger age than had the girls. Similarly, the proportions of boys and girls who intended to become regular smokers in the future did not differ significantly from each other. Overall, 15% of Primary 6 respondents and 17% of Primary 7 respondents indicated an intention to become smokers.

Several factors were found on multiple logistic regression analysis to be associated with trying smoking for the first time after the study in Primary 6 and before the follow-up in Primary 7. These were: intending to be a smoker; having a father, mother or older brother who smokes; and perceiving a high prevalence of smoking among peers.

These were not the factors *perceived* to be most important by the respondents - they emphasised the 'image' of smoking, and the attitudes and example of friends as the main reasons for becoming a smoker. Also, they saw knowledge of the health effects of smoking as having a strong preventive effect, whereas smokers in the sample were in fact no less knowledgeable about the adverse effects of smoking than were nonsmokers. Given this discrepancy between factors *perceived* to be of importance and those *shown* to be important on analysis, health educators must ensure that they do not only cover the issues found to have statistical significance, but also address those of significance to the children.

The children held a number of negative perceptions of smokers: they were seen to be less friendly, less clever, less fashionable and trendy, and worse at sports than were nonsmokers. They were, however, also regarded as more grown-up and less shy.

Health was conceptualised in very positive terms by the respondents: they made very little reference to 'health as the absence of ill-health' but, rather, viewed health in terms of 'happiness' and as a prerequisite for taking part in desired activities.

3) Study of the practice of health education in the school sample Class teachers of the children participating in Study 2 completed questionnaires requesting details of the health education given by themselves and by others to the pupils in their class. Detailed examination was made of the pattern of use of different health education materials, and of the teachers' opinions of the materials that they were using. 'Jimmy on the Road to Super Health' was again the most widely-used. Teachers praised the quality and content of this material, and regarded the approach taken as a distinct advantage of this material over others. Other materials were most usually used by teachers because it was school policy to use them, rather than because of any advantages or benefits inherent to the packages themselves.

Teachers expressed very positive attitudes towards health education, overwhelmingly indicating that it should be given high priority in primary schools. They perceived the ideal situation as being one in which schools and parents *cooperated* in health education for young people. There was very little input to the health education teaching from persons other than the class teacher.

In the light of the results of these three studies taken together, recommendations are made for the practice of health education in schools and for needed future research. These recommendations are aimed at enabling the further development of health education in schools; making health education more appropriate and meaningful for children; and clarifying the respective roles of the school and the home in educating young people for health.

CHAPTER 1 : GENERAL INTRODUCTION

The project described in this thesis is concerned with schoolchildren's perceptions of health, and with the many and varied influences on their health. Such influences arise as an inevitable part of the haphazard process of growing up, or are introduced purposefully through health education and other activities.

This introductory chapter consists of a review of, and synthesis from, literature dealing with concepts underpinning the research project. It starts with exploration of the meaning of *health*: no neat definition is arrived at, but an attempt is made to pull together sufficient strands from both lay and professional perspectives to provide a clear thread of thought which binds together subsequent discussions.

In recognition of the importance of *behaviour* as a determinant of health, attention is next given to factors, largely unconscious, which shape individuals' health-related behaviour as they go through life. These provide a backdrop against which purposeful efforts to promote health - through education, regulation and other measures - must be seen if they are to have any real hope of success. The school is recognised as a major setting for such efforts.

Given that it is the school which is the focus of interest in this thesis, it is appropriate that much consideration is given to the principles of health *education*. However, due recognition of the development and growing momentum of a broader front of activity - health *promotion* - is made, and health education is set in this wider context. This comes to be of particular importance in making recommendations for future practice in the schools studied.

Such recommendations must be based on evidence of effectiveness. Accordingly, this chapter closes with an examination of evidence and issues relating to the *evaluation* of health promotion initiatives.

1.1 DEFINITION OF HEALTH AND RELATED CONCEPTS

The most commonly quoted definition of health is that presented in the Constitution of the World Health Organisation (WHO) (1946):

> 'Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity.'

This definition goes beyond the common preoccupation with disease, and emphasises the positive (well-being) as well as the negative (ill-health) dimensions of health. Moreover, three inextricably interlinked facets of health - physical, mental and social - are identified.

However, this WHO definition of health is not entirely satisfactory in practice. It defines health as an absolute state - one to be attained 'completely' - and leaves no room for a variety or range of healthy states. Whilst the WHO concept of health may be accepted as an important ideal, its practical limitations are reflected in the many subsequent attempts at producing more complete descriptions of health.

1.1(1) Models of health

The term 'model' is used here to refer simply to 'concepts' or 'outlooks' - there are no implications of mathematical, or other, simulations. People dealing with health issues are often said to exemplify a particular model or approach to health on the basis of the ways in which they perceive and present the issues.

Culyer (1983) has identified five different models of health:

1) The medical model Health is seen as the absence of disease, and disease as a pathological state, with an associated set of symptoms and prognosis, and often susceptible to remedial measures. Taken to its logical conclusion, this model would suggest that the expertise of the medical profession is required in order to determine a person's state of health.

2 The experiential model This embraces the concept of 'feeling' well or ill. According to this model, it is possible to feel well and thus experience health in the presence of a disease. Equally, it is possible to feel ill without having a disease.

3) The social model From this viewpoint, states of health and ill-health are determined by the norms of societies: cultural, social and religious customs and expectations affect the significance attached to both 'disease' and 'illness'. We can easily illustrate the validity of this model: for example, whereas in the Western world pregnancy is medicalised and regarded as the legitimate and necessary concern of health professionals, in many societies it is seen as a natural condition requiring no special health care.

4) The positive model This is exemplified by the WHO definition. Health is viewed as more than the mere absence of disease and illness. As well as the concept of well-being, fitness is of relevance here.

5) The characteristics model Health is seen in terms of an eclectic set of characteristics of individuals, such as pain, loneliness, and functional capacity. The characteristics can all be assessed independently, but in combination they are taken to represent a person's state of health.

It will readily be seen from the above that each model has some validity. Indeed a weakness inherent to 'models' approaches is that overlapping and complementary notions are presented as though they occupy watertight compartments. Proper consideration of health arguably requires integration of all the various concepts. This is particularly important given the present day attention to multidisciplinary and intersectoral collaboration on health matters.

1.1(2) Lay conceptualisations of health

Conceptualisations of health fall into two broad groups: 'lay' and 'professional'. I shall adopt this categorisation because it provides a useful distinction between those perceptions based on personal experience and those based on a professional interpretation of others' experiences. If taken at face value, however, it may conceal the fact that health is viewed differently by various social groups, by men and women, by people of different age groups or cultures, and so on.[1]

Recently there has been an increasing recognition of the value of lay conceptions of health. In particular they form an important basis both for understanding the use and impact of health services and for developing comprehensive and appropriate measurements of health. These applications are illustrated in subsequent sections of this chapter. Here I shall examine some lay conceptions of health as identified in two recent surveys in Scotland.

Hunt and MacLeod (1987) reported on a small-scale interview study carried out in the Edinburgh area. The sample consisted of 25 women and 3 men, and although 'highly selected' was said to 'represent a fair cross-section of the population'. The aim of the study was to relate changes that the respondents had made in their health-related behaviour to the various ideas and concepts they held about health. Data were collected by semi-structured individual interviews. Health was defined by the respondents as the *absence of illness*, and also as the *ability to carry out usual or desired activities*. Ideas relating to *well-being* or quality of life were often mentioned, but were usually associated with social indulgences of various sorts which would normally be regarded as

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1 For example, Calnan (1987) has presented evidence showing how social class and economic circumstances can influence the way in which health is perceived. Also D'Houtard and Field (1984) found, in a sample of 4000 respondents in North East France, a gradient in perceptions of health from the higher non-manual classes to the lower manual classes. The former conceived health in personalised, positive terms, the latter in socialised, negative and functional terms.

the antithesis of 'healthy' behaviour. For some people, it was necessary to have a personal indicator of health: being able to carry out specific activities, keep up with others, and so on. In this study, working class and middle class respondents were found to differ very little in their concepts of health.

Eadie (1987) outlined the findings of a study exploring people's views of the relationship between health and fitness. The research took the form of twenty-two group discussions, involving a total of 132 people. Quota sampling methods were applied to make the sample representative of Scotland's urban population. Discussants generally regarded health as an enduring quality which enabled the individual to resist illness and disease. It was seen in negative terms, being strongly associated with illness and disease and the curative process. Nevertheless, health was acknowledged to have a positive value and was seen as an essential precondition for a full life. Eadie's study also compared concepts of health with concepts of fitness. Six dimensions were identified on which health and fitness tended to differ from each other:

1) Perceptual emphasis Health was seen largely as a *negative* concept (a struggle for control) while fitness was seen as a more positive concept (a chance for betterment).

2) Complexity Health was seen as *multi-faceted* whereas fitness was regarded as almost totally physical in nature.

3) Level of importance Health was regarded as an *essential precondition for full life.* Fitness was viewed on two levels. On the first level, fitness, attained through sport, was not seen as essential to the enjoyment of life. A second, more basic, level of fitness, on the other hand, *was* seen to be necessary for daily routine.

4) Measurability Health was believed to be *more difficult* to measure than fitness. Appropriate measurements of health were highly subjective, being based upon personal estimates and differing lifestyles.

5) Behavioural objectives Attempts to improve health were characterised essentially as curative in nature, whereas fitness was more often seen in the context of self-improvement through physical development.

6) Level of control Fitness as a measure of athletic ability was thought to be easier to control than health, since its development was almost entirely dependent upon the action of the individual. On the other hand, it was commonly held (especially by those in lower socio-economic groups) that people had *limited personal control over health.* Curative (detection, diagnosis and treatment) and preventive behaviour were identified as the two main processes for controlling personal health.

In addition to these six distinctions, three links between fitness and health were identified, fitness being seen as an *element* of health, and as a *means* to health, and health being viewed as a *precondition* of fitness.

These two studies have been presented in detail to illustrate the complexity of lay conceptulisations of health. There is extensive agreement between these and a number of other studies (Baumann, 1961; Calnan, 1987; Herzlich 1973; Kirscht *et al*, 1966; Pill & Stott, 1982).

The diversity of lay conceptualisations is extreme, and any single report inevitably restricts the variety and concentrates on grouping the most popular concepts. Accepting this, we have to be alert to the fact that reports of lay conceptualisations constitute, to a greater or lesser extent, professional interpretations of a selection of lay descriptions.

1.1(3) Professional conceptualisations of health

Similarly we have to recognise that professional conceptualisations of health may reflect lay perceptions to some degree. I shall consider a number of professional conceptualisations to demonstrate the strengths and weaknesses of some of the approaches taken.

Firstly, health has been conceptualised as a continuum, from death to optimal achievable wellness (Travis, 1977) (Figure 1.1a):

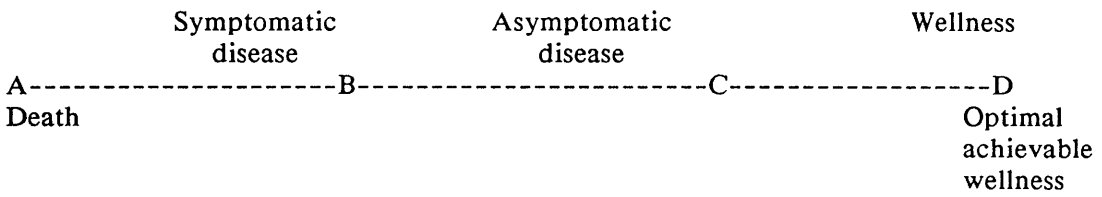

Figure 1.1a: Health as a continuum

This sort of schema is unsatisfactory. It is possible to feel full of wellness in the presence of serious, even life-threatening, disease. Equally, one may be free of disease without enjoying a feeling of wellness. The concepts are clearly too complex to be represented on a straight-line continuum.

One of the complexities that cannot be accommodated by the continuum view of health is the multi-faceted nature of the concept. It will be recalled that WHO (1946) identified three facets: physical, mental and social. More recently, additional facets have been incorporated into the recommendations from the Council of Europe Committee of Ministers (1988):

> 'Health is more than the absence of infirmity or illness, it is a quality of life comprising social, mental, moral and emotional as well as physical dimensions. It is a dynamic asset to be acquired, defended and constantly rebuilt throughout life.'

This shares with the WHO definition the advantages of alerting us to the positive as well as negative dimensions of health, and of encompassing facets beyond the physical

dimension. It does, however, arguably improve on the WHO notion by stressing that health is *dynamic* something 'to be acquired, defended and constantly rebuilt throughout life'. The dynamic nature of health has been highlighted also by other writers:

> '(Health is) a quality of life involving dynamic interaction and interdependence among the individual's physical well-being, his mental and emotional reactions, and the social complex in which he exists.' (School Health Education Study, 1967)

> 'Health is best thought of as an ongoing process rather than as a static quality ... to truly observe the effects of health on a given individual, we must observe him as he interacts with his physical, mental and social environment ... we must see him in action before we can assess his health status with any assurance.' (Greene, 1985)

Three points emerge from such dynamic conceptualisations of health. First, an individual's state of health cannot be viewed in isolation from his environment. Not only is it influenced by the environment (social, economic and political as well as physical), but it is also reflected by the individual's behaviour in different environments. For example, someone suffering from xenophobia might appear completely healthy in a familiar situation and in the company of family and friends. In a different environment, however, where he would be confronted by total strangers, his apparent state of health would be completely different.

The second point is that health is relative to a persons' goals and values. For example, Dubos (1961) wrote as follows:

> '... health and disease are concepts too complex and too subtle to be defined merely in gross physical terms. The meaning of these concepts is conditioned by the goals that the individual formulates for himself. Optimum performance imposes different health requirements on the plowman, the jet pilot, the philosopher.'

Whilst it could be argued that an individual often does not formulate such goals '*for himself*', Dubos does illustrate clearly that health is determined by individual goals and values for living. Looking again at the situation of a xenophobic individual, that person could be described objectively and subjectively as healthy in a closed familiar environment as long as he did not value freedom to venture into open and novel situations.

Finally, the description of health as a prerequisite for 'flourishing' and living a satisfying, fulfilled life should be examined. This viewpoint has been expounded by Gardner (1968) in particular:

> 'Health has a great deal to do with the quality of our lives. It is an end and a means in the quest for quality, desirable for its own sake, but also essential if people are to live creatively and constructively. Health frees the individual to live up to his potential.'

Gardner's view of quality of life is a somewhat ethereal one, quite different from the idea usually employed by health professionals assessing the relative effects and values of different treatments. The point can be taken that health is a prerequisite for living a happy, fulfilled life. What this involves varies not only according to individual requirements (which vary according to age, experiences and so on) but also according to differing social and cultural conceptions of quality of life (Hare, 1986). We can also see that positive health is not only necessary for, but is also a consequence of, fulfilment.

1.1(4) Combining lay and professional conceptualisations

Although professional conceptualisations are usually presented in a more verbose, articulate manner than are the lay definitions, we can see that the issues raised are very similar. Taking the various characteristics together, we can identify several points fundamental to the concept of health.

1) Health has a positive as well as a negative dimension. The former involves the concepts of well-being and fitness; and the latter incorporates illness, disease and injury and its consequences.

2) Both the positive and negative dimensions have physical, social and mental facets.

3) At two levels, health is prerequisite for living. It is essential in order to carry out customary, everyday activities. It is also necessary for the achievement of a satisfying and fulfilled life.

4) Health is difficult to measure objectively, and individuals may have their own personal indicators of health.

5) Health is an ongoing process, not an absolute or static state. It is a product of a variety of forces which bear on an individual at a particular point in time. The desired mix varies for each person.

6) An individual's health cannot be assessed independently of his goals and values, his behaviour, or his environment. It is affected by, and reflected in, all of these.

1.1(5) Determinants of health

Genetic constitution may directly cause ill-health (through, for example, inborn errors of metabolism). It also determines an individual's vulnerability or resistance to important acquired conditions (such as coronary heart disease) given particular patterns of behaviour and/or exposure to a wide range of environmental influences. Whilst genetic disorders do pose particular challenges for prevention, through screening and counselling, for example, the greatest task for health education (and, more broadly, for health promotion - p47) is the countering of unhealthful behavioural and environmental influences. Accordingly, in this section I shall focus on these interrelated non-genetic determinants of health.

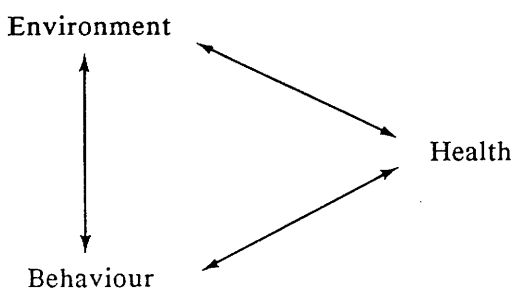

Figure 1.1b: Health and non-genetic determinants

Figure 1.1b is a simple representation of the links between environment, behaviour and health. The environment has many facets. In particular we can identify the *physical* environment, which includes housing conditions, atmospheric pollution,

climatic conditions, and so on; the *cultural* environment, which consists of relatively stable cultural mores and determines the way in which different entities and behaviour patterns are regarded; the *social* environment which is very variable, and is composed of the people with whom an individual is interacting; and the *politico-economic* environment which determines the availability of many services (including health services and leisure facilities) and affects the individual's access to them.

Any of the facets of the environment may *directly* affect health. Each can also have an effect *indirectly* through an influence on behaviour. For example, the use of preventive health services such as well woman clinics is determined to a large extent by the accessibility of these clinics in economic and situational terms which is in turn determined by the socio-political environment. Accessibility of the service influences the clients' behaviour in making use of the service and this behaviour in turn influences their state of health. Another example is of the way in which the social environment can act as a motivator or reinforcer for behaviour. People who are trying to give up smoking cigarettes may find it best to select a social environment of nonsmokers.

Turning to a broader consideration of environmental influences, some writers have questioned the validity of a 'lifestyle' approach to the promotion of health, emphasising instead the well-established association between social, political and economic factors and health status (eg Cohen & Cohen, 1978; Green *et al*, 1980; Hunt & Martin, 1988; RUHBC, 1989). Ill-health is strongly correlated with poverty and disadvantage, and indeed the gap between the health of social classes I and V is as wide today as it was thirty years ago (Townsend & Davidson, 1982; Smith & Jacobson, 1988).

We must be careful to avoid creating a false dichotomy here. It is undeniably neither desirable nor reasonable to focus on changing individual behaviour without addressing environmental constraints. This is not to say, however, that efforts should not be made to help people to take action to improve their health while more structural changes are sought. Attention to individual lifestyle is dangerous only if it is allowed to eclipse the context in which behaviour develops.

Several terms are used to describe types of behaviour connected with health and it is valuable here to clarify their meanings.

The term *health-related behaviour* is used to describe all types of behaviour which affect health in either a positive or a negative way. This behaviour may influence one's own health or that of others. It may be carried out in a conscious attempt to influence health, or without awareness of such consequences. Health-related behaviour includes the following types of behaviour described by Kolbe (1984).

Health (or wellness) behaviour is behaviour undertaken by an individual who believes himself to be healthy for the purposes of attaining even greater health.

Preventive health behaviour is undertaken by an individual towards preventing illness or detecting it in an asymptomatic state.

Illness behaviour is undertaken by an individual who considers himself to be ill, to obtain an assessment of his health status and any appropriate treatment.

Behaviour, like the environment, can have direct and indirect influences on health. The direct route is quite apparent. Eating behaviour, illicit drug-taking, consumption of alcohol, cigarette-smoking and exercise have all been shown to affect an individual's state of health. The indirect route, acting via the environment, is less often described. Man is constantly shaping the environment. Political and industrial policies may affect health: smoking policies in the workplace are a topical example. Community initiatives may result in the provision of new facilities such as safer play areas for children which in turn affect health. A caring neighbour may insulate an old person's home to protect her from the hazards of a cold living environment.

Influences on health-related behaviour will now be examined in more detail.

1.2 INFLUENCES ON HEALTH-RELATED BEHAVIOUR

Three different types of approach have thrown light on processes which influence health-related behaviour:

1 Studies of social influence The central idea in this approach is socialisation, which incorporates the processes of conformity and modelling. The principal agents of socialisation are the family, friends, the school, and the media.

2 Attitudinal models This approach examines the relationships between the related concepts of knowledge, attitudes, beliefs, perceptions and behaviour. A fundamental question is whether behavioural change will result from a change in any or all of the other parameters.

3 Behaviourist approaches These are based on the concept of conditioning, with its premise that behaviour develops through the contingencies of reward and punishment.

These approaches will now be examined in turn.

1.2(1) Social influence on behaviour

Socialisation is an aspect of all activity within human societies. It is the process by which we acquire our social characteristics and learn the ways of thought and behaviour considered appropriate in our society (Bilton *et al*, 1981). Tones (1979a, p 23) defined the process as follows:

> 'Socialisation involves the transmission of culturally valued norms: more specifically, knowledge, values, attitudes and routines (or habits) considered worthwhile by a community or society.'

This definition is broad in that it includes the transmission of more than behaviour; but narrow in that it covers only those norms which are 'culturally valued' and 'considered worthwhile'. When applying the concept of socialisation to health-related behaviours we may often be looking at habits and behaviour patterns which, although they may serve a function or be 'rational' in a given context, may not more generally be considered 'good' or 'worthwhile'.

Another point should be clarified. Socialisation is not a process of transmission from one socialised being to another 'asocial' being. Rather, people play an active role in their own socialisation:

> 'Socialisation is not a unidirectional process in which the infant is a passive recipient, an asocial being assimilated and made capable of performing roles demanded by society.' (Susser, Watson & Hopper, 1985, p 451).

Several categories of socialisation have been identified (Tones, 1977, 1979a, 1987a). Particularly important are the early influences of home, parents, other relatives and other close contacts, which constitute *primary socialisation.* The process of primary socialisation operates via a system of reward and punishment (conditioning), together with a modelling process. Interest in and attitudes to health-related practices such as smoking develop early in life (Baric, 1979), and it has been suggested, for example, that most methods of anti-smoking education are ineffective in preventing the onset of smoking because children may grow in an environment which leads them to accept smoking as a normal part of their development (Bewley, Bland & Harris, 1974).

Secondary socialisation refers to the ways in which norms are transmitted outwith the primary process by agents such as schools and the mass media. It is characterised by greater formality and less emotional involvement with the 'client' than in primary socialisation. The school is probably the major agency of secondary socialisation, and manages to combine informal processes with more structured and formal approaches. Some authors view the school as the most powerful agent of socialisation (Susser, Watson & Hopper 1985, p 464):

> 'The school is the major socialising instrument of the society at large, and its socialising influence is effected only partly through formal teaching. The school is a small society that governs much of the child's life, and its influence pervades many areas of thought and feeling'.

More usually, however, the family is viewed as the principal socialising agency. According to the Law of Primacy, early influences (as in primary socialisation) are more powerful and enduring than later ones; the young child is also more receptive to influence than is the more mature individual (Rawbone *et al*, 1978). Secondary

socialisation may have an influence on attitudes, values and behaviour in three ways: it may *consolidate* existing norms: *modify* existing norms; and *create* new norms.

The most controversial of these influences is the second, which is termed *resocialisation.* If a teacher decides to try to resocialise children he must recognise the possibility that he may produce *culture clash*: the values of the home and the school may conflict, producing discomfort in the child. Moreover, the child may conform in school and then ignore or reject the values promoted in school when in the home enviroment.

It is questionable whether teachers should have a formal resocialisation function, or whether their role is mainly to provide knowledge and to educate. More will be said about the teacher's role in Chapter 3.

Although the home and the school are regarded as the main socialising influences in society, two other agencies should be considered: namely, *reference groups* and *the media.*

There has been extensive research into the processes of social influence in small groups, and the principle of conformity has been shown to be central to an understanding of many of these processes.

When people have to express a judgement about something in the presence of others, they have two major concerns: they want to be right, and they want to make a good impression. To determine what is right, individuals have two sources of information: what their senses indicate and what others say. There are two explanations, then, for people yielding to group pressure. Firstly, an individual might yield to others because he trusts their judgement more than his own. This is conformity under informational influence. Secondly, conformity might result from normative influence, which refers to the desire to be liked and the aversion to being disliked. Normative and informational influences are the major general mechanisms through which groups have an impact on their members (Deutsch & Gerard, 1955).

Of course the relative impact of these two mechanisms varies from situation to situation. A distinction can be made between: public conformity, or compliance, which will occur when an individual conforms mainly because of what others will think of him but still maintains his prior conviction; and conversion, which will occur when someone trusts the information provided by others and consquently changes his private opinion (Hewstone *et al*, 1988).

The concept of conformity throws light on majority influence in groups, but cannot explain innovation or minority influence. Minorities by definition do not possess the normative means of control available to majorities, and may have less access to informational means. Nethertheless, a minority can be very influential.

Moscovici (1976), has argued that the impact of a minority group is dependent on behavioural style, and especially on the consistency with which the group defends and advocates its position. Consistency can make a minority influential - at least after a while when those in the majority group begin to observe that the minority maintains its position in spite of the opposition. Indeed it is a typical observation that, in contrast to conformity studies, the minority effect only begins to show after a period of time (Nemeth, 1982). The impression of potential correctness of the minority position is further advanced when majority members notice that one or more of their group members begin to respond like the minority. A consistent minority will be most influential if it adopts a flexible style of negotiation, rather than behaving in a rigid and dogmatic manner.

The impact of the minority will also depend on the strength of the prior conviction of the majority members and on the certainty and confidence they attribute to each other. It thus follows that health-related behaviour will be least amenable to influence when it occurs within groups, families or communities which are cohesive and self-confident.

Comparing majority and minority influence, we can see that whereas majority influence may lead to compliance without conversion (because the majority initiates a social comparison process in which the subject compares his response with that of others), the influence of a minority may result in conversion without compliance.

The final socialising agency to be examined is the mass media. One important way in which the media exert social influence is through *modelling* - the process of learning from observing others.

Bandura (1969) has proposed three types of modelling effects. Firstly, the effects may be *inhibitory* or *disinhibitory*. These occur when the actions of others strengthen or weaken the restraints of an observer against performing a particular act. Secondly, *response-facilitating* effects enhance an individual's already-present tendency to behave in a particular way. Thirdly, there are *observational learning* effects, where a person may acquire a potential behaviour merely by observation and without immediate imitation.

The principles of social modelling underlie the use of famous personalities both in commercial advertising and also in health education campaigns. The 'audience' might buy the product or adopt the recommended behaviour pattern because they want to be like the admired 'star'.

The use of social models is one specific way in which the media may influence people's beliefs. More generally, though, the media can have a very powerful influence on the normative system, through the way in which it represents social norms (Tones, 1985a). One example is the coverage on British television of alcoholic drinks and the consumption of alcohol. Smith, Roberts and Pendleton (1988) examined the portrayal of alcohol in a systematic sample of 50 programmes broadcast on British television, over five months in 1986. On average there was a reference to alcohol in every six minutes of programming. Altogether drinking scenes accounted for 14% of the programme time in fictional programmes and 3% of the programme time in non-fictional programmes. The authors thus concluded that television is 'exaggerating the amounts of drinking of alcohol in society'. Moreover, the programmes were found to misrepresent

the pattern of consumption of different types of alcohol: population surveys show that beer is drunk more widely than wine or spirits, but in the sampled programmes the rank order of alcoholic drinks was reversed. A second way in which the portrayal of drinking was misrepresented was in the balance between alcoholic and non-alcohol drinks. In 'real life' alcohol is consumed less than non-alcoholic beverages, but in the sample programmes alcohol was drunk more often.

Smith, Roberts and Pendleton also noted that the potential undesirable consequences of alcohol consumption were seldom portrayed. This amplifies earlier work by Hansen (1986) who found that the negative effects of alcohol were rarely shown and that, where they were, they were often treated in a light-hearted manner. Hansen also stated that on prime time television 'alcohol consumption is associated with pleasant, sociable behaviour and with glamorous and affluent lifestyles', and Piepe *et al* (1986) found 95% of 'soap opera' characters to be drinkers. Clearly at present television fosters an environment in which alcohol consumption features prominently as an attractive part of everyday life.

Of particular concern is the effect on young people of this representation of alcohol, an effect which is potentiated by advertisements for alcohol. Barton and Godfrey (1988) have commented on the 'power of television advertisements for alcohol'. They noted not only that these advertisements were longer than others, but also that they occupied the first and most effective position on the commercial breaks to an overwhelming extent.

Young people's images of drinkers have been found to coincide to a considerable degree with those promoted through television programmes and advertising. For example, non-drinkers tend to be perceived as lacking in attractiveness, sociability and toughness (Aitken, 1978). Also Aitken, Leathar and Scott (1988) reported that among groups of 14- and 16-year olds, beer and lager advertising campaigns were seen as promoting images of masculinity, sociability and working-class values, whereas campaigns for drinks like Martini and Bezique were identified with 'a blend of sociability, style, sophistication and attractiveness'. In other words, these advertisements

were reproducing social norms concerning alcoholic drinks and of behaviour appropriate to men and women and to different social class groupings in relation to the consumption of alcohol.

The conclusion of Aitken, Leathar and Scott (1988) is important because it places the role of advertising back into the context of other social influences:

> 'This is not to say that advertising is the sole determinant of children's perceptions of the characteristics of different kinds of drinkers. These perceptions are shaped also by their own experiences and by the mass media in general.'

Once again we are reminded of the importance of personal experiences gained through the family, the school and various reference groups.

This discussion of socialisation has concentrated on the transmission of cultural norms and the ways of thought and behaviour considered appropriate in our society. In other words, it has illustrated how the established and accepted ways are perpetuated. This is a functionalist theory, in which man is viewed as a socialised participant and not as a shaping force in his own right. It is wholly directed at showing how basic values in society are maintained unchanged, and does not identify any sources within the social system from which new values might arise.

Whatever the strengths of emphasising social and cultural influences on behaviour, and whatever the limitations these influences place on our freedom to choose particular modes of behaviour, it has to be noted that an individual is not merely an actor of the norms of conduct which he has internalised through socialisation. He may act impulsively or inventively in ways not learned from society. Moreover, societal norms are not specific rules which prescribe precise modes of conduct (Worsely, 1977):

> 'The inadequacy of the 'over-socialised' conception follows not only from the fact that people are not totally dominated by learned rules but also from the fact that those rules which are learned do not completely and precisely specify the details of individual conduct. The rules of society are often vague, ambiguous and quite unclear in their implications. To have internalised them is not to be in possession of some very definite set of instructions on what to do.'

To summarise, theories of social influence illustrate how patterns of behaviour are shaped according to prevailing norms in society. Socialisation is an aspect of all activity within human societies, but we can identify the specific agencies, or vehicles, through which it operates. In particular, I have examined the role of the home (the main agent of primary socialisation); and of the school, reference groups, and the mass media (in secondary socialisation).

Socialisation is a means by which cultural norms are perpetuated in society. We now need to look at theories which embrace the notion of social change, and the innovative independence of the individual.

1.2(2) Attitudinal models of behaviour

Definitions of 'attitude' are legion. In general, however, two viewpoints exist.

The first viewpoint can be illustrated by the definition by Roediger *et al* (1984, p 578), who defined an attitude as:

> 'a relatively stable tendency to respond consistently to particular people, objects or situations.'

This definition raises several points.

Firstly, attitudes are not fixed: they change, and can be changed.

Secondly, the phrase '*tendency to respond consistently*' implies that a person's behaviour in a situation provides an indication of his attitude towards it, but that his behaviour does not *necessarily* reveal his attitudes. There are three main reasons why this may be so.

1 He may have a conflicting motivation or desire. For example, he may have a favourable attitude towards losing weight, but be overcome by a strong desire to eat fattening food.

2 He may not have the knowledge or experience required to translate the attitude into action. For example, although having a favourable attitude towards losing weight, he may not know which foods to choose in order to achieve his aim.

3 The attitude may conflict with social, cultural or group norms and thus be discordant with his perceptions of what is acceptable behaviour.

Next, the definition indicates that an attitude relates *'to particular people, objects or situations'*. This raises the question 'Can an attitude be held towards *anything*?' The answer is 'Yes', and, importantly, it is possible even to hold an attitude towards another attitude. For example, an elderly person may have an attitude of fear or anxiety towards falling or being left alone, but at the same time have an attitude of contempt towards the first attitude. Those dealing with old people are familiar with the problems such conflicts of attitudes may bring with them.

Finally, the definition does not specify the *nature* of the response which characterises an attitude.

In contrast to this so-called 'unidimensional' viewpoint, there are three-component models as exemplified by the definition given by Ribeaux and Poppleton (1978):

> 'an attitude is a learned predisposition to think, feel and act in a particular way towards a given object or class of objects'.

This gives an indication of attitude *structure* rather than merely indicating an unspecific response. Let us now look at the implications of Ribeaux and Poppleton's definition.

Firstly, an attitude is a *'learned predisposition'*. Learning is sometimes a conscious process involving understanding, but sometimes we learn without noticing that we are doing so. For example, as discussed above we 'learn' cultural norms and what constitutes socially-acceptable behaviour through the processes of socialisation and are rarely aware that we are doing so. Similarly, an attitude may be changed as a result of consciously acquired knowledge or understanding, but this is not always the case. For example, a person's attitude towards pain-killers may be changed by an advertisement for a new product which 'relieves pain faster'. He does not need to learn why the new product relieves pain faster in order to hold a favourable attitude towards and be more likely to buy the new product. Attitudes are therefore not necessarily *consciously* learned.

Secondly, three components of an attitude are distinguished - the thinking or belief (cognitive) aspect, the feeling (affective) aspect, and the acting or behavioural (conative) aspect. We can regard the cognitive aspect as an active, conscious belief, the affective aspect as a non-rational, gut-reaction feeling or 'drive', and the conative aspect as manifest behaviour. The three components appear separate but, as I shall discuss below, are not completely unrelated.

There are contradictory conclusions from the research which has been carried out to test whether unidimensional or three-component models provide a more accurate description of attitudes (Chaiken & Stangor, 1987). The unidimensional conceptualisation is the most frequently adopted, on the grounds of simplicity, in attempts to measure attitudes, and has been employed when assessing attitudes in the research described in this thesis. However, in examining the factors which influence health-related behaviour, there is much to be learned from looking at the inter-relationships of the elements of the three-component construct.

The *cognitive* component concerns the individual's belief about the object or element of interest. This belief may not be a true or accurate representation of the facts - it may be biased or incomplete, but it represents the individual's own direct or indirect intellectual evaluation of the object resulting from his experience.

Four types of beliefs have been identified (Kreitler & Kreitler, 1976), each of which may influence health-related behaviour: beliefs about *self* - 'I generally make a conscious effort to maintain a healthy lifestyle', for example; *general* beliefs, such as 'smoking can cause serious health problems such as cancer and heart disease', beliefs about *norms or rules* - for example, 'smoking in public places should not be allowed'; and beliefs about *goals* - 'an important goal for me is to maintain my health', for instance. Together an individual's set of beliefs form what Kreitler and Kreitler have termed a 'cognitive orientation cluster'. Tipton and Riebsame (1987) showed that smokers, former smokers and non-smokers differed on all four types of belief, and that on combining the scores on the four subscales, the total for each group differed significantly, non-smokers scoring highest and regular smokers lowest. Their research

demonstrates that 'beliefs about smoking and health can be reliably measured and that these beliefs related to people's smoking behaviour'. A cause and effect relationship cannot, however, be assumed: it cannot be asserted that beliefs influence, or are predictive of, behaviour.

Related to the concept of belief is that of *knowledge*. Knowledge refers to belief substantiated according to some accepted criteria. I may believe, for example, that there is someone in the next room; and on checking and seeing that there is someone there my belief becomes knowledge. We must, however, recognise that accepted 'facts' change over time, with advances in science. A rigid distinction between knowledge and beliefs is therefore unhelpful. Also, of course, beliefs which can never be proved can be as strongly valued by an individual as knowledge.

Knowledge has been shown to be related to behaviour. In the Cardiff Health Survey, for example, a positive association was found between levels of knowledge about nutrition and healthful changes in food consumption (Charny & Lewis, 1987). Once again, of course, no assumption of causation can be made, and in any case the relationship, although consistent, was not strong.

It is well established that the possession of knowledge does not necessarily affect behaviour in a predicted manner. A clear illustration of this is the fact that a substantial proportion of the British population smokes despite widespread awareness of serious ill-effects (Baric, 1978).

A third cognitive concept is that of *perception*. Several types of perception have been found to influence health-related behaviour. The concept of *perceived vulnerability* has, in various forms, been an integral component of research generated by the *Health Belief Model* (HBM) (Becker, 1974). In its original form it postulated that *perceptions of being susceptible* to some condition, the perceived seriousness of that condition and *perceptions of the relative costs and benefits* of behaviours that prevent or treat the condition are all related to the likelihood that an individual will engage in some specific preventive behaviour. Perceived susceptibility has been regarded as the most important of the three variables (Gochman & Saucier, 1982) but the model as a whole has been

criticised for its underlying assumption of 'rationality' (McGlew & Jamieson, 1979). Whilst this criticism is fair, it need not invalidate the model provided that due attention is paid to the 'correctness' of behaviour from the point of view of the subjects involved.

The placing of 'perceptions' within a cognitive model is somewhat dubious: they might well be regarded as falling under the *affective* umbrella since they may involve *feelings* (about vulnerability, for example) rather than beliefs based on an evaluation of 'the facts'. Indeed, Tones (1979b) has criticised the HBM on the grounds that it confuses 'attitude' and 'belief'.

Beliefs are influenced by, and themselves influence, affective factors - feelings, likes and dislikes, and emotions (and, as described in section 1.2(1), both are influenced by the normative system). The cognitive system and the affective system cannot be seen as two distinct and independent components: they overlap and influence each other.

The third component of an attitude identified in Ribeaux and Poppleton's (1978) definition is the conative (behavioural) component. The term 'behaviour' takes in a wide range of phenomena, verbal and non-verbal, including consciously-effected actions and even physiological reactions. These events also take place within a wide range of environmental situations which will themselves influence behaviour. There is difficulty, then, in assuming that what a person says or does is an *accurate* reflection of his attitude: a person's true attitudes may only be expressed in situations where there is trust and privacy, and may differ greatly from his publicly expressed opinions (Wheldall, 1975).

The foregoing discussion illustrates the problems involved in determining the attitudes held by a population. There are two options. Firstly, we can ask subjects *directly* about their attitudes towards the object or situation of interest. The problem with this option is that, as described above, the responses received may not reflect the subject's true attitudes. (Indeed, people may even offer responses which they think the interviewer 'wants' to hear). The second method by which attitudes can be determined is *indirectly* through observation of behaviour. Limitations to this approach have been outlined above (pp.20-1).

The complexity of assessing attitudes directly (by questioning) and indirectly (by observation) is well seen through interpretation of the experiment carried out by LaPiere (1934). In the early 1930s, a time of widespread anti-Asian prejudice in the United States, LaPiere travelled throughout the country with a Chinese couple. They were refused service in only one of over two hundred establishments. Six months later, LaPiere wrote to all these establishments asking if they would accept Chinese guests. Of those who responded, 92% said that they would not. Even allowing for response bias, the responses differed significantly from the behaviour displayed, suggesting that stated attitudes were not strongly correlated with behaviour. It must not be assumed from this, however, that the *true* attitudes were those implied by responses to questioning: it is conceivable that the manifest behaviour corresponded with unexpressed attitudes (see also p 20). Problems with the investigation of the attitude-behaviour relationship have been further elucidated by Ajzen and Fishbein (1977).

In relation to the prevention of ill-health, there has been strong emphasis on changing people's attitudes as a means of effecting behavioural change. For example, the following statement was made in a British Government consultative document (Department of Health and Social Security, 1976, p 87):

> 'There is much potential for prevention in health education aimed at altering people's attitudes towards such things as tobacco, alcohol and exercise - persuading them to invest in their own health'

However, there is *no assurance* that a change in attitudes will result in a change in behaviour. Even where an association between attitudes and behaviour can be demonstrated, we cannot assume a cause-effect relationship. (Indeed there is evidence that a forced change in behaviour can cause a change in attitudes - Wilson & Alcorn, 1969).

Green (1970a) made an extensive review of research concerning the issue of whether the concepts of attitude and belief have any scientific status in the explanation, prediction and causation of behaviour. He presented eight main arguments against

attitude change strategies, and emphasised the importance of 'external influences' and personality factors in interaction with attitudes and behaviour:

> 'Problems with the attitude concept and attitude change strategies have resulted not only from the tendency to isolate them from sociological and situational contingences, but also from the tendency to isolate attitudes from each other and from underlying value and personality systems'. (Green, 1970a)

In other words, social influences, environmental factors (triggers or inhibitors), and personality factors all interact with both attitudes and behaviour. Attitudinal influence cannot be viewed in isolation from these other issues.

1.2(3) Behaviourist approaches

Behaviourist approaches encompass a number of theories, including classical conditioning, operant conditioning and cognitive behaviour modification. Their common underlying premise is that behaviour develops through the contingencies of reward and punishment. Certain behaviour patterns may be reinforced because they, or their consequences, are associated with a rewarding experience. Some rewards may be the mere absence of adverse consequences, others may take the form of physical pleasure or psychological benefits, such as enhanced self-esteem or well-being.

Social learning theory is the behaviourist approach which sheds the greatest amount of light on an understanding of health-related behaviour patterns. Miller and Dollard (1941) laid the foundations for modern social learning theory by proposing that imitation could be explained by the basic principles of stimulus, reward and reinforcement. When the imitation of a behaviour pattern results in a reward in one situation, that imitation becomes generalised to many situations. This process is important in maintaining discipline and conformity to the norms of society (see section 1.2(1)).

Bandura (1977) developed a broader social learning theory in which social learning is said to occur either directly through the consequences of one's own responses or more frequently, through observation of the behaviour of others. The behaviour of

another person (a model) is a source of information, and the observer then uses this information to decide whether or not to perform the same behaviour as that observed.

This distinction has been illustrated by Green (1970a) as the difference between the strategies of *direct reinforcement* and those of *vicarious reinforcement*. For women attending a well-woman clinic, for example, direct reinforcement in the form of a perceived positive evaluation from the doctor was clearly related to compliance with the preventive behaviour recommended by the clinic. The same women who had been thus directly reinforced at the clinic could then provide vicarious reinforcement for their friends or relatives.

Thus, according to social learning theory, (and to behaviourist approaches in general), most behaviour leads to consequences which either increase or decrease the probability of similar behaviour being exhibited in the future.

In the context of health-related behaviour these behaviourist theories remind us of the importance of facilitating or inhibiting factors in translating behavioural intention into a displayed behaviour.

1.3 MODELS OF INFLUENCES ON HEALTH-RELATED BEHAVIOUR

In attempting to obtain a comprehensive explanation of the determinants of health-related behaviour, it is necessary to take advantage of, and integrate, the various insights gained from the types of approach outlined in 1.2. Several models have been devised to this end. It is sufficient to examine two.

The *Health Belief Model* (HBM) (Becker, 1974) has already been mentioned (1.2(2)). It is concerned with the prediction that an individual with a given health need will act to achieve a 'correct' outcome for that need. The decision to adopt a given health-related behaviour is viewed as dependent on the person's perceptions of his susceptibility to a disease, of the seriousness of the disease and of the relative costs and benefits of behaving in the 'correct' way. In addition it is recognised that a trigger might be required to promote the 'correct' behaviour.

Limitations of the HBM have to be recognised. The first relates to the inadequacy of a medical judgement of 'correctness ' or 'rationality' (see p 23).

Next, the HBM makes little recognition of the social influences and cultural norms which influence individuals' predictions of the acceptability of different behaviour patterns.

Thirdly, as the name of this model indicates, the crucial perceptions on which behaviour is dependent are seen as being beliefs. The language is confusing: it is not clear whether the perceptions have a cognitive or an affective basis, or whether (as suggested on p 24) they, in fact, encompass both.

The *Health Action Model (HAM),* devised by Tones (1979b), and represented in Figure 1.3 is a development from the HBM and overcomes some of its limitations.

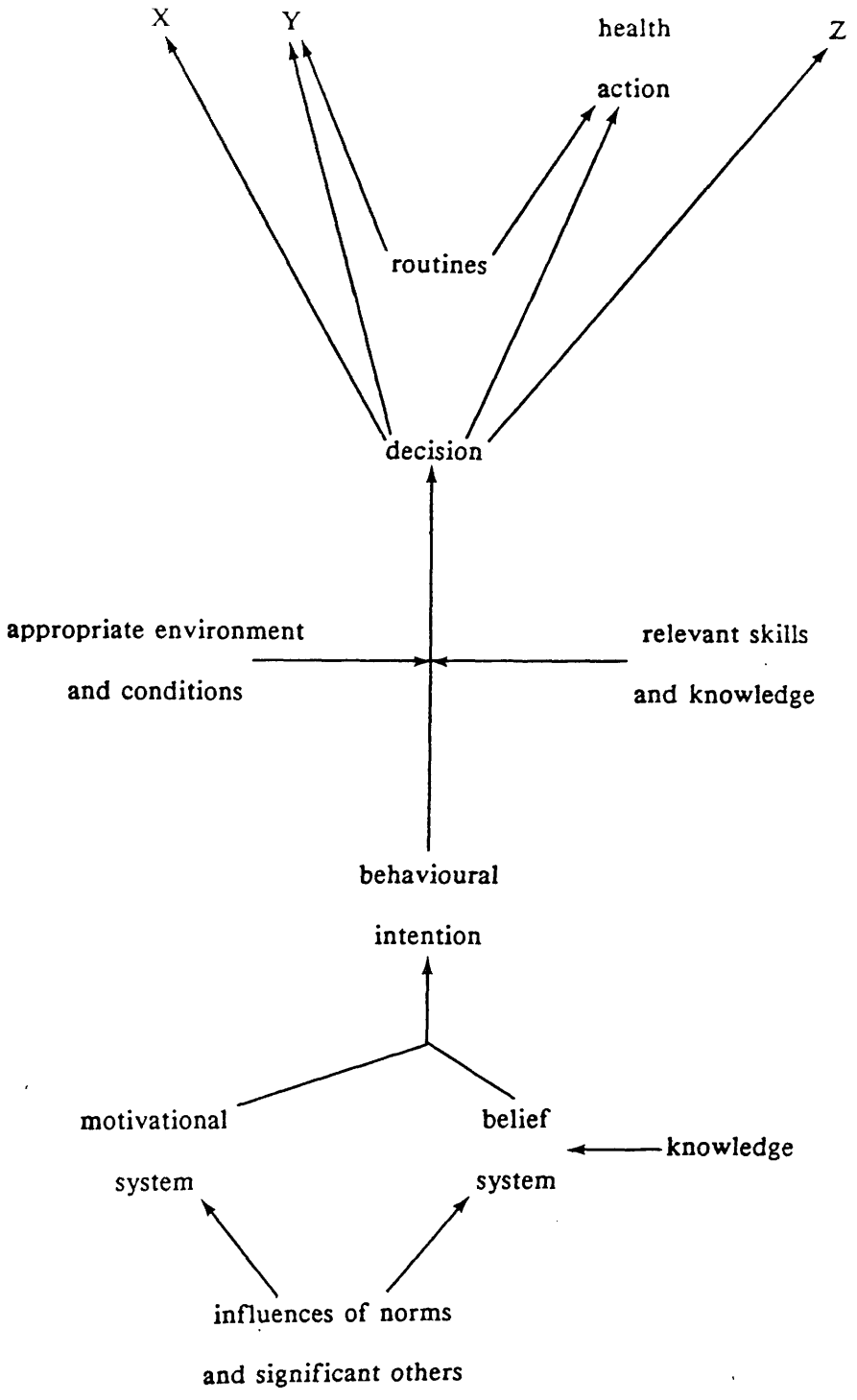

Figure 1.3: The Health Action Model

According to the HAM, health-related behaviour is largely dependent on the interplay of two systems, the motivational system and the belief system, both of which are affected by norms and by significant other people.

The motivational system is seen to comprise values (including the values placed on the different components of health), attitudes (for example, to self or to a given health state or proposed health action) and drives (both basic, such as hunger or pain, and derived, such as anxiety).

The belief system includes beliefs about self and about cause-effect relationships. An important component consists of those normative beliefs which define an individual's estimates of the ways in which significant others will react to a contemplated health action.

There is some confusion concerning the belief system, however. In some accounts of the model (Tones & Davison, 1979) the 'belief' categories of the HBM, including perceptions of susceptibility and seriousness, are included in the HAM's belief system, whereas elsewhere, Tones (1979b) has stated that perceived susceptibility is a belief but that perceived seriousness is an attitudinal or motivational factor. Once again, the problems in viewing beliefs and attitudes as discrete entities are demonstrated.

The HAM predicts that the outputs of the motivational and belief systems interact *multiplicatively* to determine behavioural intention. Low motivation or beliefs held without conviction will result in an intention to do nothing; and even where there is an intention to exhibit a particular action, 'enabling factors' are necessary if this inclination is to be converted into action.

Two final points should be made concerning this model. Firstly, 'X', 'Y' and 'Z' in Figure 1.3 represent a range of hypothetical choices of action open to the individual (including the choice to do nothing) which are alternatives to the 'desirable' health action. The decision taken may be to adopt one of these unhealthful choices. We cannot assume that the healthful action will be the rational or logical choice to individuals in different situations.

The last point to note is that established routines or habits bypass the conscious decision-making process. The establishment of routines in early life can thus be an important task for health education.

The Health Action Model integrates aspects of all three approaches to studying influences on health-related behaviour (1.2(1)-(3)). The studies of social influence enable understanding of the impact of norms and significant others; the attitudinal models provide insight into the motivational and belief systems and illustrate a weakness in this dichotomy; and the behaviourist approach demonstrates the importance of enabling factors after the necessary cognitive and motor skills have been acquired. This has the advantage of compensating for the inadequacies of the three approaches taken in isolation.

Health education and health promotion are the main approaches to exerting influence such that the healthful behavioural response is encouraged or enabled.

1.4 HEALTH EDUCATION

There are many definitions of health education. It is helpful to look first at some broad definitions, as an examination of these reminds us of the multiplicity of people, agencies and institutions which affect our health-related behaviour, and the multitude of ways in which the influence of health educators may be exerted. Such definition include the following:

> 'In its broadest interpretation, health education concerns all those experiences of an individual, group or community that influence beliefs, attitudes and behaviour with respect to health as well as the processes and efforts of producing change when this is necessary for optimum health. This all-inclusive concept of health education recognises that many experiences, both positive and negative, have an impact on what an individual, group or community thinks, feels and does about health, and it does not restrict health education to those situations in which health activities are planned and formal.' (WHO, 1969).

> 'Health education is the totality of experience from which individuals learn behaviours related to their health.' (Schools Council, 1976).

> 'In the widest sense, health education may be defined as the sum total of all influences that collectively determine knowledge, belief and behaviour related to the promotion, maintenance and restoration of health in individuals and communities. These influences comprise formal and informal education in the family, in the school and in society at large, as well as in the special context of health service activity.' (Smith, 1979).

These definitions reflect the multifaceted and positive spirit of the WHO definition of health (p2). Moreover, they emphasise a role for health education in promoting the *collective* health of groups and communities.

A very broad view of the educational process is also displayed. In addition to *formal* efforts, *informal* influences, such as interactions with family or friends, are viewed as education.

These definitions embrace, by implication, those influences which are exerted without any directly health-related motive and those which militate against health. Rather than including these as 'health education', it is useful to adopt Daube's (1982) terms 'anti-health education' and 'pseudo-health education' for influences which are not

aimed at the enhancement of health. Anti-health education is the purposeful promotion of unhealthful beliefs, attitudes and behaviour by vested interests (for example the tobacco industry), while pseudo-health education comprises literature and other promotions on health topics (produced by food industries for example) aimed at the promotion of a product other than health.

Whilst we may reasonably argue against such a broad interpretation of education, these definitions do serve as a valuable reminder of the background against which organised health education efforts have to operate. It is purposefully-provided, pro-health education which is the main concern of this thesis, however, and so we must turn to narrower definitions of health education, such as:

> 'In the more limited meaning, health education usually means the planned or formal efforts to stimulate and provide experiences at times, in ways and through situations leading to the development of health knowledge, attitudes and behaviour that are most conducive to the attainments of individual, group or community health.' (WHO, 1969).

or, in relation to young people:

> 'Health education will be regarded as that part of education - the responsibility of parents, the schools, and indeed the whole community - which will help boys and girls as they grow up to minimise the risks of diseases and injuries resulting wholly or in part from ignorance, habits and ways of living, and give them a basis of understanding of the functions of the community health services so that they may be able to use them intelligently and efficiently and play their parts in reaching wise decisions on their evolution as patterns of illness change.' (DES, 1977).

These definitions are quite specific about the processes and content of health education, and they enable us to identify its aims.

It is useful now to examine specific aspects of health education in more detail, and I shall consider the following issues:

1 The *content* of health education.

2 The *domains* open to health education.

3 The *target groups* for health education.

4 *Approaches* to health education.

1.4(1) Content

Draper *et al* (1980) presented a useful 'tripartite typology'. Although presented as a classification of health education, it is really a categorisation acording to its information base:

Type 1 health education: education about the body and how to look after it.

Type 2 health education: provision of information and advice about access to, and the most appropriate use of, health services.

Type 3 health education: education about national, regional and local policies and structures and processes in the wider environment which are detrimental to health.

The first type is the commonest at present. As presented by Draper *et al*, it has the rather restricted focus of 'looking after the body'. This exposition could be usefully expanded to incorporate the full spirit of the WHO concept of health (p2), and, by explicitly going beyond the idea of providing information, to emphasis the importance of developing lifeskills (Hopson & Scally, 1981).

Turning to type 2 health education, Taylor (1984) has discussed the paradox which arises between this type of approach, which emphasises the role of 'powerful others', and the type 1 health education, which emphasises self-determination and responsibility for health. These two types of health education may be seen as encouraging different health loci of control - type 1 'internal', and type 2 'external' (Wallston & Wallston, 1978 - see p 44). A step towards resolving this paradox is to see type 1 health education as an essential knowledge base for the appropriate use of the health services. A further step is to broaden out type 2 health education into a two-way process, whereby service providers learn from service users.

Type 3 health education is described by Draper *et al* as 'part of the currently moribund public health tradition'. At present it is the most neglected of the three types of health education, partly due to the fact that it involves taking the path of most resistance (confronting powerful vested interests), and partly due to a common viewpoint that health education should not be 'political' but rather should be concerned with

individual lifestyle. This issue is discussed below both in terms of approaches to health education (1.4(4)) and also in relation to the emergence of health promotion (1.5).

The Council of Europe Committee of Ministers'(1988) statement on school health education provides a useful complementary account of the content of health education:

> providing better information on factors which influence health;
>
> elucidating the relationships which exist between health and the physical and psychosocial environment;
>
> developing individual, family and collective awareness and a sense of responsibility in relation to health; and
>
> promoting responsible attitudes and ways of life conducive to health.

This account improves on the Draper *et al* typology by specifically mentioning a collective aspect to health and by progressing beyond the limited process of provision of information by discussing the promotion of 'responsible attitudes' and 'ways of life'. On the other hand, the idea of education about health services is missing, and there is no explicit reference to the notions presented as type 3 health education by Draper *et al.*

1.4(2) Domains

Discussing health and social education in secondary schools, Cowley (1977) identified the following four domains open to health educators. Certain specific methods are relevant to each of them.

1 The cognitive domain The most usual objective in the cognitive domain is the provision of knowledge, but there are other relevant objectives such as fostering powers of understanding, analysis and synthesis. Knowledge and understanding may be seen as *necessary* for healthful behaviour, but not *sufficient.*

2 The attitudinal domain The attitudinal domain comprises attitudes, feelings and values. The objectives of health education in this domain are said to include:

> changing and then reinforcing a specific attitude;
>
> exploring a specific attitude;
>
> value clarification;

increasing understanding of those in need; and

producing a positive self-concept;

Based on an appreciation of the fact that the provision of information is not enough to produce healthful behavioural change, there has been a marked swing in health education away from the cognitive domain towards the attitudinal domain. However, as we have seen (1.3(2)), neither does a change in attitudes necessarily result in a desired change in behaviour. Nevertheless, attention to the attitudinal domain may bring about a culture which more readily accepts, different ways of behaving.

3 The situational domain The purpose of work in this domain is to clarify the pressures people are under to behave in certain ways in certain situations, so that alternative outcomes from the situation may be seen as possibilities. The influence on behaviour of situational or, more generally, *environmental* factors is thus examined within this domain. Many of the issues discussed in section 1.3 in relation to social influences and behaviourism are of relevance here. Specific objectives include the teaching of decision-making skills, exploring perceptions of exploitation, and teaching problem-solving skills and coping strategies.

4 The behavioural domain Activity in this domain involves making the decision that it is preferable for an individual or group to be at a point B (participating in a self-help group for tranquilliser withdrawal, for example) rather than at point A (feeling contented but being dependent on tranquillisers). Objectives may include the development decision-making skills.

In his discussion, Cowley noted that work in the behavioural domain clearly involves 'a moral decision' on the part of the educator, whereas in the other domains emphasis is on neutral provision of the information and skills necessary for the recipients of the education to make their own decisions and choices. For example, in his account of the attitudinal domain he mentioned the process of *value clarification*, enabling people to explore and prioritise their values in an objective and neutral way without any judgement on the part of the educator. Within the behavioural domain,

however, it was pointed out that the educator does make judgements: the process is no longer one of value clarification, but rather one of *values promotion.*

As Williams and Aspin (1981) have acknowledged, the idea that any health education is value-free or value-neutral is a spurious one. To decide to attempt health education at all involves making a judgement that health itself is valuable, and implicitly that some health-related behaviours are preferable to others. In short, health educators cannot realistically avoid subscribing to certain key values. A value-neutral posture involves 'concealing the inculcation of values behind a cloak of spurious objectivity' (Hyland, 1988). One must be sympathetic with Cribb's (1986, p 108) contention that, since health educators are already thoroughly committed to education in and about values, it is:

> '... educationally and professionally unacceptable not to be self-conscious about this, and worse still to rely on the careless image of health as a good thing.'

Recognition that health education is inherently value-laden and value-driven does not imply rejection of person-respecting methodology: health-enhancing cognitive, attitudinal, situational and behavioural characteristics may be sought without rejecting the validity of existing values.

1.4(3) Target groups

A classification of health education according to the 'target groups'[1] involved was presented by Tones and Davison (1979), who combined behavioural and medical criteria to describe three types of health education:

Primary health education: The provision of knowledge and information to *healthy groups* about health threats to which they are likely to be exposed.

Secondary health education: The provision of information to *at-risk groups* or *ill groups* aimed at favourably influencing relevant aspects of behaviour.

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1. The term 'target groups' is inappropriate because it carries images of programmes being developed by the 'professionals' and being aimed at the uninformed lay 'targets', whereas within the field of health education, the emphasis has been placed on two-way communication (rather than unidirectional targeting), with the professionals and the lay public learning from each other. Nevertheless, the term 'target groups' is widely used in the health education literature, and as it was used in the papers described here, I shall retain this vocabulary -

Tertiary health education: Advice to *those who cannot anticipate or accomplish a complete return to normal health* aimed at maximising recovery and rehabilitation and preventing relapse.

An obvious parallel exists between this classification and the traditional classification of prevention based on medical criteria (eg Alderson, 1976):

Primary prevention: The prevention of onset of disease in healthy subjects.

Secondary prevention: The treatment and cure of established disease.

Tertiary prevention: The alleviation of discomfort and disability in established chronic disease that cannot be cured.

Whilst there is some correspondence between Tones and Davison's classification of health education and Alderson's classification of prevention, there is one clear difference in the boundaries. This is illustrated with reference to the example of cigarette smoking behaviour and the onset of smoking-related illness or disease.

According to the classification of health education, primary health education on a particular topic is targeted at 'healthy' groups (defined in relation to the disease(s) in question) who do not exhibit the associated at-risk behaviour - in this case, 'healthy' nonsmokers. Secondary health education is directed at those who are 'healthy' *or* who are 'reversibly ill' *and* who do exhibit the at-risk behaviour - 'healthy' smokers and 'reversibly ill' smokers fall into this category. Tertiary health education is aimed at those with advanced, established illness who exhibit the at-risk behaviour - smokers with smoking-related illness who cannot anticipate full recovery.

The boundaries in the medical model of prevention are drawn simply according to health or disease criteria, and take no account of behaviour. Thus, with reference to the scheme presented, 'healthy' people (whether or not they smoke cigarettes) are seen as targets for primary prevention; those with presymptomatic or 'reversible' disease (such as asthma) are targets for secondary prevention (whether or not they smoke cigarettes); and those with established chronic disease, disability or handicap (sufferers from a stroke, for example) are the targets of tertiary prevention (whether or not they smoke cigarettes). In other words, the secondary health education of Tones and Davison's

classification incorporates one group, 'healthy' smokers, who are targets for primary prevention according to the medical model, together with another group, 'reversibly ill' smokers, who fall within the remit of secondary prevention.

Throughout the previous discussion I have placed the terms 'healthy' and 'ill' in inverted commas to alert the reader to problems associated with the use of these terms. As discussed in section 1.1(3), the concept of a perfect state of health is spurious. Health is composed of various components and facets and not all need to be present for someone to be described as healthy. The boundaries described above between 'health', 'reversible ill-health' and 'established ill-health' are in reality often blurred, representing false distinctions within a gradation of states of health. Neat categorisation of people may thus be impossible.

The tripartite classifications of health and prevention are helpful in emphasising the scope for action even once disease has developed, even irreversibly. Tannahill (1985a) has, however, drawn attention to the limited applicability of the medical classification of prevention. There is a danger in placing *all* medical activity under the umbrella of prevention. It is self-evident that medical treatment in its various manifestations is always aimed at the prevention of certain eventualities - even if only the prevention of death. 'Seen in this light, the contemporary identification of prevention as a priority for health services becomes less meaningful, for high-technology, "curative" services may stake a claim and we are in danger of losing sight of the traditional notions of prevention' (Tannahill, 1985a).

Given these difficulties, Baric's (1978) classification of prevention according to a behavioural model has its advantages. According to this construct, prevention is defined purely in terms of behaviour and relates only to efforts *before* a given unhealthful behaviour pattern is adopted. Tones and Davison's primary health education thus belongs here.

1.4(4) Approaches

Several different philosophical positions underpin health education practice. Tones (1977) identified two such standpoints, namely the '*preventive medicine approach*' and the '*education approach*'. In more recent writings (Tones, 1981a; 1986a; 1987a) he has made the scheme more comprehensive by adding two further stances - the '*radical*' and the '*self-empowerment*' approaches.

1 The educational approach

The underlying assumption in this approach to health education is that of freedom of choice. The principal aim of health education is viewed as being the facilitation of decision-making, irrespective of the decision which might ultimately be made.

From this 'educational' stance, the principal objective of health education is to provide and foster an understanding of information relating to health issues, so that people can be free to choose their behavioural response. The model is not so naïve as to suggest that the provision of information is sufficient to bring about behavioural change, and sees the processes of exploring people's beliefs and values, and of developing decision-making skills, as inherent to health education practice.

The methods adopted are educationally 'pure', involving active participation on the part of the recipients, and any response to the health education should be voluntary. It follows that 'evaluation of the effectiveness of the educational approach merely involves demonstrating that the client has a genuine understanding of the situation' (Tones, 1981a).

This has clear advantages for the health educator over the gauging of success according to changes in behaviours which are often pleasurable, entrenched in lifestyle, and viewed as rational, desirable or even necessary by the 'target group'.

A major limitation to this approach is the overestimation of freedom of choice in health-related matters. Choices may be constrained by socialisation (1.2(1)), socioeconomic disadvantage (1.1(5)), and by the fact that many unhealthful behaviours are habit-forming. The educational approach may compound feelings of helplessness and inadequacy.

We thus have the paradoxical situation whereby an approach defended as being morally desirable may not even be ethically acceptable.

2 The preventive medicine approach

This is perhaps the best known approach to health education. Implicit in it are an awareness that curative medicine cannot adequately address contemporary community health problems which often have a lifestyle or behavioural basis, a belief that prevention is better than cure, and recognition that a narrow educational approach is inappropriate.

The underlying assumption is that the prevention of ill-health is best achieved by influencing behaviour. Health education is seen as a means to this end, and may involve manipulation or even coercion (Tones, 1981a). Aims of health education according to this preventive medicine approach thus may include achieving a reduction in the prevalence of cigarette smoking in order that the medical burden of smoking-related disease be lessened; or inducing people to drink low-alcohol or non-alcoholic beverages if they are driving so that the unnecessary drink-driving casualties may be prevented.

In its adoption of methods other than the 'educational', this approach recognises that the provision of information is insufficient to effect behavioural change: it recognises the illusory nature of free choice and also the limitations of defining rationality according to a 'professional' viewpoint (1.3). However, in addressing the need to go beyond educationally 'pure' methods for health education, the preventive medicine approach incorporates non-rational means. The include commercial and fiscal measures and the offering of incentives - methods of 'unethical' coercion (Tones, 1981a) to achieve behavioural change in the face of the social and psychological factors which influence health-related behaviour. Therefore, in the methods employed to

overcome some of the limitations of the educational approach, the preventive medicine approach may itself be seen as involving unethical means.

The assumption inherent to this approach, that the prevention of ill-health is best achieved by influencing behaviour, also requires some examination. Not only is the relationship between behaviour and health complex and confounded by many factors (1.1(5)), but also there is a problem in assuming that target groups will be motivated to change their behaviour for the purposes of prevention. This type of motivation requires an outlook orientated towards the future, and to benefits which might accrue in the long-term. It also requires that health be recognised as a pre-eminent value. Neither of these requirements can be assumed to be present in any 'target group', and particularly not in disadvantaged groups.

The preventive medicine approach has also been criticised for turning health educators into 'handmaidens to the medical model' (Tones, 1981a). The medical model of health (1.1(1)) has been subjected to many challenges in recent years on the grounds that it takes a very narrow, illness-dominated view, isolated from the environment (Zola, 1972); that it tends to sap self-reliance by medicalising more and more aspects of everyday life and generating expectations of 'a pill for every ill' (Illich, 1977); and that its preventive medicine orientation is in effect furthering curative health goals (Vuori, 1980). Moreover, emphasis on prevention has the consequences of health education becoming adopted as a branch of medicine, in the pursuit of medical objectives, and of health educators becoming viewed as preventive medicine practitioners. This situation is inevitably at odds with the views of many teachers who view their role as *educational.*

3 The radical approach

This approach builds on some of the principles implicit in the preventive medicine approach, and may be seen as the antithesis of the educational approach. It rests on the belief that health education should address the social issues which underlie ill-health. One of its catch-phrases is 'refocus upstream' (McKinlay, 1979). This expression originates from the analogy of medical care as the process of dragging drowning people from a river. Instead of expending all his energy in resuscitating each

patient, the doctor could be of more benefit by refocussing upstream to see who or what is pushing the people into the river. In doing this he may be able to tackle the root cause of the ill-health and render much of his previous activity unnecessary.

According to the 'radical' model, the root cause of ill-health is to be found in the social structure of society. It is, thus, seen as more sensible to try to deal with disadvantage than to persuade individual members of disadvantaged groups to alter their lifestyle.

From this viewpoint the main of health education is to increase people's awareness of the social origins of ill-health, and then persuade them to take action. The type 3 health education described by Draper *et al* (1980) (1.4(1)) is clearly of relevance here. Because knowledge alone is insufficient to effect behavioural change, the radical approach (like the preventive medicine approach) recognises a need for persuasive tactics to encourage action. Appropriate action involves the creation of health promoting environments, and changing health-damaging institutions, policies and environments (Freudenberg, 1981). Many of these activities, regarded as components of health education according to this 'radical' approach, are appropriately placed within the 'health protection' domain of health promotion (1.5).

4 The self-empowerment approach

The self-empowerment approach to health education is the most recent and currently fashionable model. Its underlying principle is that even if people *understand* the issues and have the necessary skills to make informed decisions about their preferred action and even if people are *aware* of the various influences and restrictions on their behaviour and even if they are *motivated* to take a particular form of action, such action may not be feasible unless they *believe that they are capable* of taking it. They must believe that they have the capacity to influence their future destiny, and they must possess the social skills to do so.

The aim of health education from this approach is to facilitate the kind of informed choice which has been considered an illusory goal (p 41). Tones (1981a) has identified four strategies which would be involved in achieving this:

1) The promotion of beliefs and attitudes which are favourable to deferring immediate reward for a more substantial benefit in the future.

2) The development of 'internal locus of control'.

3) The enhancement of individual self-esteem.

4) The development of certain social skills, eg assertiveness training.

The first of these strategies involves not only affecting people's attitudes and beliefs (as described by Tones), but must inevitably involve altering people's *value systems*. There is an inherent assumption that future benefit, in the form of 'health' for example, is objectively *better* than immediate reward, such as a drug-induced 'high'.

The second strategy refers to '*locus of control*'. The notion of 'perceived locus of control' was developed by Rotter (1966). Individuals with 'external locus of control' will tend to believe that their scope for action is limited by fate or by 'powerful others'; whereas those whose locus of control is 'internalised' believe that they themselves have control over their actions and future condition. Locus of control has been shown to be associated, in many ways, with health state, health-related behaviours, and attitudes to health services (Wallston & Wallston, 1978). Consistently, 'internality' has been associated with the healthful outcome.

The third strategy for self-empowerment concerns the development of a positive *self-esteem*. Self-esteem refers to the evaluation an individual makes of himself - his personal judgement of worth (Coopersmith, 1967). The assumption underlying this strategy is that people will behave in accordance with how they see themselves, so that those with a low self-esteem will not be motivated to look after themselves whereas those with a high self-esteem will value themselves, be more likely to protect and promote their health, and be more able to resist the various pressures which encourage unhealthful behaviours. There is some, albeit limited, evidence in support of this assumption. Coopersmith (1959) measured the self-esteem of a sample of 10-12 year-old

children both from the perspective of the subjects themselves (using the Self-Esteem Inventory) and from that of the observer (using a Behaviour Rating Form). There was substantial agreement between self-evaluation and behavioural expression in a majority of cases. Rosenberg (1965) also found a strong association between self-esteem and behaviour among adolescents. He concluded that self-esteem is an essential for responsible behaviour.

The importance of self-esteem as a component of school-based health education was outlined in the curriculum document 'Health Education in Schools' (DES, 1977) which suggested that if all pupils can be made to feel that they matter and that they have a unique contribution to make to the community then they will be less likely to endanger their own or others' health. The Schools Council Projects (Schools Council, 1977) also emphasised the importance of self-esteem, and many more recent reports have placed great significance on the concept.

The complexity of the concept of self-esteem must be recognised. Coopersmith's (1959) work suggests that purely subjective measures are inadequate and that in order to determine self-esteem, behavioural, phenomenal and experiential factors must also be taken into account. Although some measures of self-esteem have been devised (notably the LAWSEQ scale developed by Lawrence (1981)), there is no reliable, validated measurement scale and this clearly acts as a hindrance to research examining the associations between self-esteem and health-related behaviour.

The last of the strategies for self-empowerment involves the development of *social skills*, or *lifeskills* (Hopson & Scally, 1981). Without the presence of the required skills, the previous three strategies can have little effect. Skills, such as assertiveness, could enable an individual to challenge his environment (by confronting social norms, for example) and also provide him with an experience of success which may not only promote internality of his locus of control but also enhance his self-esteem. The possession of social skills may therefore reinforce the other factors. Clearly, even a self-empowered individual armed with the necessary skills may not be successful in having

an impact on an adverse or oppressive environment - but he has a greater chance of success than another without these skills.

The self-empowerment approach inter-relates with the other approaches to health education. Empowerment requires information and understanding of health-related issues, skills, and an environment conducive to healthful lifestyles. This point has often been missed by writers who see a dichotomy between those approaches which emphasise the role of *individual* lifestyle, and those which emphasis the influence of the *environment*. In a discussion of the 'victim-blaming' argument, Green (1987) described this perceived dichotomy between educational and environmental strategies, and stated his view that the division is false and would be better viewed as a partnership:

> '(there is an) annoying tendency .... to equate educational strategies with victim-blaming, and to contrast educational strategies with organizational, economic and environmental interventions, as though you could have any of these without education.'

he continued:

> 'This is not to deny that we often need environmental, organizational and economic interventions, but it is too insist that they go hand-in-hand with an educational approach to ensure informed consent from the public and to assure that individual who are not ultimately protected by them are still in a position to protect themselves.'

The self-empowerment approach is a unifying approach to health education by which one may avoid false distinctions between initiatives designed to influence lifestyle and those emphasising environmental factors. It recognises and combines many of the strengths of the other three approaches to health education. Moreover, it is concerned with the promotion of positive health (through the development of lifeskills and self-esteem) as well as with the prevention of ill-health. In short, the self-empowerment approach is justifiably currently seen as the most promising (and ethical) approach to health education.

1.5 HEALTH PROMOTION

The account so far has focussed largely on *health education* in the prevention of ill-health and promotion of positive health. '*Health promotion*' has gained popularity in the present decade generally as a term which embraces both educational *and* non-educational means of achieving these dual objectives.

Like health education, health promotion means different things to different people. A number of interpretations of the terms have been reviewed by Tannahill (1985) and by Tones (1986a). It is not necessary to explore these here. Instead in seeking a suitable framework for this thesis, I shall examine the model devised by Tannahill (1985, 1988a, b) which has become widely used in health promotion definition, planning and practice.

According to this model, (Figure 1.5) health promotion comprises three overlapping spheres of activity - health education, prevention and health protection. This last may be defined (Tannahill, 1988a) as:

> 'legal or fiscal controls, other regulations or policies or voluntary codes of practice, aimed at the enhancement of positive health and/or the prevention of ill-health'

Health protection is thus a descendant of traditional public health regulatory measures.

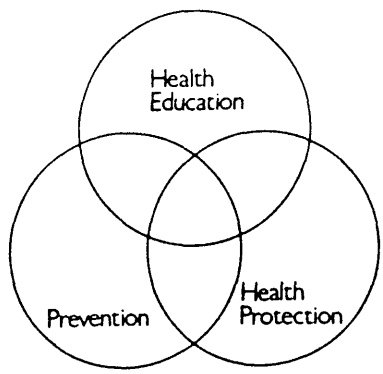

Figure 1.5 : A model of health promotion

The model has a number of strengths. It integrates the complementary notions of the prevention of ill-health and the promotion of positive health; it epitomises the sort of unifying approach to health education advocated above (p45) and its clear delineation of the component spheres and their overlaps is of great benefit in facilitating a multidisciplinary appreciation of roles and potentials in health promotion.

The framework has been criticised for being 'simplistic', for 'imposing arbitrary linguistic boundaries' and for 'conflating crucially distinct aspects' (Rawson & Grigg, 1988).

The model certainly is simple, but then the purpose of a model is to present complex procedures in an uncomplex manner. This can only be validly seen as 'simplistic' if some essential component is omitted, and Rawson and Grigg make no suggestion that this is the case.

The second criticism refers to arbitrary linguistic boundaries, but the purpose of a model is to delineate activities, and thus impose boundaries. The domains identified by Tannahill are far from arbitrary - they refer to widely recognised activities - and although no unanimously-accepted definitions exist for these activities those applied in this model represent widely-held views.

Rawson and Grigg's main criticism refers to the mixing of distinct aspects of activity - their example is the 'lumping together of education of the public or for professionals with a preventive focus'. They have argued that health education of the public and health education for professionals are totally distinct activities which have been lumped together as one. However, there is no indication in Tannahill's description that he does not see them as distinct. Indeed, with his explicit separation of health education for the public from that for professionals, he is clearly implying that these *cannot* be lumped together as one. The seven 'domains' in the model indicate the focusses of health promotion initiatives - there is no suggestion that the contents of each domain are homogeneous. The purpose, rather, is to indicate the *diversity* of activity which can appropriately be included within the field of health promotion.

Tannahill's model thus seems to stand up to criticism. It also is much in line with Tones' (1986a) overview, but has the benefits over this of clarity and simplicity. Henceforth in this thesis, the term 'health promotion' will be used in accordance with the Tannahill model.

1.6 EVALUATION OF HEALTH PROMOTION

In the previous two sections I have presented models of health education and health promotion. These models delineate and define the subject areas and thereby enable us to identify the activities with which workers in these fields are legitimately concerned.

This is only a start, however. It is necessary to have confidence in the value and effectiveness of the activities - to be able to show that they are worthwhile, that they contribute to the aims of health education and health promotion and are consistent with the overall philosophy. This requires *evaluation* of the activities.

The following discussion refers to the evaluation of health promotion activities in general. Specific attention is paid to the sphere of health education, however, as this is the component of health promotion which is of most relevance to this research project.

What follows is an examination of some of the underlying theoretical issues, rather than 'how-to-do' of evaluation practice. The practical issues of relevance to this research project are discussed as they arise in the context of the research methodology.

1.6(1) What is evaluation?

Two views of evaluation pervade the literature on health promotion. From the first viewpoint, evaluation involves assessing an activity in terms of the aims or specific objectives of that activity. For example, Williams (1987) has written as follows:

> '...the purpose of evaluation is that it should demonstrate whether an activity has been successful or to what degree it has failed to achieve some stated aims.'

It follows that before we can evaluate, we need to be clear about the aims of the activity. We can then judge the value of the activity in relation to the degree of attainment of these aims.

From the second viewpoint, evaluation is a broader process. It involves assessing an activity by measuring it against a standard which is not necessarily related to the

specific objectives or purpose of the activity. This approach has been advocated by Green *et al* (1980, p 132):

> 'We define evaluation simply as the comparison of an object of interest against a standard of acceptability.'

Clearly, as in the first definition, the 'standard of acceptability' may refer to the achievement of aims or objectives. However, this is only one possibility. From this second viewpoint, evaluation may involve assessing an activity according to, for example, the ethics of the approach, or the cost of the activity, or the reactions of those involved.

The first viewpoint may be viewed as a subset of the second. This latter viewpoint is helpful in a number of ways.

Firstly, it is consistent with the fact that we are interested in answering not only the question 'Is the activity effective?', but also questions such as 'At what cost?', 'Using what means?' and 'With what consequences?'. In other words, it is a reminder that we cannot be content only with showing that activities are effective at achieving the desired outcome.

Secondly, it clarifies the fact that we should assess the *processes* of health promotion as well as the *outcomes*.

Thirdly, it leads us away from a narrow view of suitable outcome measures by alerting us to the presence of a range of standards of acceptability. It follows that a variety of assessment procedures may be appropriately employed in evaluation.

1.6(2) Definition of terms

Whilst there is a general consensus about the way in which many terms are used in discussions of the evaluation of health promotion activities, there seems to be some inconsistency concerning their specific meaning. I shall now clarify the meanings attached to them in this thesis.

The first term which requires definition is '*aims*'. As in everyday parlance, this term refers to the intention or purpose of an activity. There are three important points to be made about aims:

1 Aims are the planned, or hoped-for, effects of an activity.

2 Aims tend to be general, and may be broken down into specific *objectives* each of which contributes in some way to the overall aim of an activity.

3 Aims may concern the long- or short-term consequences of a programme, or may refer to some aspect of the process of programme implementation or operation.

This final point requires some clarification.

Activities in the field of health promotion may be examined in three broad stages. The initial stage involves planning and design; the second, the 'running' of the programme; and the third, observing the effects. Whilst one of the reasons for evaluating programmes is to enable improvements in their design, the process of evaluation is generally concerned with assessing the second and third stages of the activity of interest. Terms are therefore required to refer to these post-design phases.

The implementation and 'maintenance' of a programme is called the '*process*'. It involves all the workings of the programme, its different components, and their interactions. Clearly, this machinery has to be in order before any programme can be expected to work as planned. Evaluation of process is an essential step towards achieving the desired effects from a programme.

The effects, or consequences, of a programme may be observed (if they exist) at any stage over a period of time after exposure to, or implementation of, the programme. For convenience we may distinguish between those consequences observed more or less immediately and those resulting after a longer period of time. Henceforth I shall refer to the former as '*impact*' and to the latter as '*outcome*'.

In evaluating a programme, we may be interested in any or all of the three facets - process, impact and outcome - and we need measures of each. Collectively these can be termed *output measures*[1].

1.6(3) Measures of output

The previous discussions have emphasised that evaluation must always be relevant to the aims of the activity being assessed, and these aims should be explicitly stated. It follows that the output measures must also be appropriate to the aims. Measurements of individual behaviour will not always do. For example, sometimes the interest lies with economic measures, or educational measures, or assessment of change in social attitudes or in environmental conditions. We thus need a variety of appropriate measures of output.

In addition to being appropriate, the measures must meet the criteria of repeatability and validity. Repeatability refers to the extent to which a measurement gives the same answer when the subject is re-examined. Provided that there is no relevant change in the subject or conditions of assessment, a repeatable measure will yield consistent responses every time it is applied. Validity refers to the extent to which a measurement actually does measure what it purports to measure. The validity of a measurement may be tested by comparing it with another, accepted, measure.

Figure 1.6 indicates a broad aim for health promotion, some of the objectives, and output measures which could appropriately be used in the evaluation of activities. Clearly, each measure has its own relatively specific use. Health promotion involves a wide range of diverse activities, and its evaluation is problematic for the many reasons described below (section 1.6(5)), but there is a range of output measures which can appropriately be used to evaluate the effects of activities.

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1 Use of the term 'output' in this way is clearly distinct from the common epidemiological usage of the term, for example as 'the immediate result of professional or institutional health care activities, usually expressed as units of service, eg patient hospital days, outpatient visits, laboratory tests performed.' (Last, 1988).

Aim	Measure
To prevent ill-health while promoting positive health	Health indicators
Objectives	**Measures/methods**
To change knowledge and beliefs	Health knowledge Subjective probabilities
To change attitudes and values (including self-awareness and self-esteem)	Values clarification Attitude scales (eg Likert scale) LAWSEQ self-esteem scale*
To enhance decision-making skills	Assessment of behaviour
To change behaviour	Assessment of behaviour
To establish health promoting environments	Environmental monitoring Policies in public places
To achieve healthful social change	Surveys of social attitudes and values
To achieve self-empowerment of individuals and communities	Locus of control scales** Assessment of behaviour
To achieve the above in optimal and acceptable ways	Efficiency Cost-effectiveness/cost-benefit analysis Ethical assessment

* Lawrence, 1981
** Wallston and Wallston, 1978

Figure 1.6: A guide to health promotion evaluation

The list in this figure is not intended to be comprehensive but highlights those measures which are most frequently used. It is beyond the scope of this discussion to examine each in turn, and those employed in this research project are described in later chapters. Here I shall concentrate on some general points, in relation to the measurement of positive health and ill-health.

Levels of health in individuals and in populations have conventionally been measured using *objective* indices, such as biochemical, microbiological and radiological

tests, blood pressure measurement, and behavioural assessment in the first instance; and mortality, morbidity and service utilisation (eg bed occupancy) rates, in the second. However, it has become noted increasingly that these measures are not appropriate measures of the *health* of individuals and populations, in the complete sense of health (see 1.1). There are several reasons for this:

1) In general they are measures of illness and disease, and make no contribution to the measurement of positive health.

2) They are principally measures of the physical component of health and neglect the important mental and social aspects.

3) They are based on professional assessments and professional opinions of the crucial components of health. They therefore take little or no account of lay perceptions of health and lay priorities for health.

These objective measurements have thus been found to give misleading impressions about health. For example, a decreasing mortality rate does not necessarily mean an increasingly healthy population, just as the absence of abnormality in biochemical or radiological tests does not mean that the individual being assessed is healthy. For all these reasons it has become clear that more sophisticated indices are required to measure health status.

As outlined in section 1.1(1), health may be assessed in terms of a set of properties, attributes or characteristics. It is this approach that has been pursued by researchers involved in developing *subjective* indicators of health. These indicators measure health in terms of an eclectic set of 'characteristics' of individuals - functional capacity, pain, social activity, physical mobility, and so on. This approach is consistent with the various other conceptions of health: it includes the perspectives of social health and positive health; it incorporates the medical model of health as the absence of disease; and it emphasises the experiential concept of feeling ill or well whether or not disease is present.

There are two types of health indicator: the health profile and the health index.

Health profiles provide a descriptive account of different aspects of health (such as pain, physical mobility, social life etc). Each of these aspects is described in quantitative terms, but the disparate measurements are not aggregated. Thereby a profile quantifying different aspects of health is yielded. The Nottingham Health Profile is a good example (see Hunt, McEwen & McKenna, 1986).

Health indices go a step further than the profiles, by aggregating measurements of many different aspects of performance and experience into a single value. For example, the Index of Health (Chiang 1965; Chiang & Cohen 1973) is a measure of the health of a population. It incorporates the weighed mean duration of 'health' of a population per annum, the mean duration of health by age groups, the effects of illness and mortality, and (in the later, revised version) includes a factor for severity. It aggregates the values from these various components onto a single scale.

Clearly the choice of which health indicator to employ will depend on the purpose for which it is being used. Within the field of health promotion, however, the profile approach is seen to have several advantages over the global health index.

Firstly, the aggregation of different components into a single index inevitably results in the loss of information. Given the range of objectives of health promotion activities, it follows that the output measures should involve assessments of the various components of health rather than the reduction of information to a single value.

Secondly, whilst the development of a valid and reliable health profile is far from straightforward, it avoids many of the methodological difficulties inherent in the construction of indices, such as the problem of combining like with unlike, and of assuming that some factors inevitably add more to the state of health than do others.

Thirdly, whereas the index approach is most useful for the assessment of outcome of different interventions, or for comparing the effects of different health care services, health profiles provide more appropriate measures of the state of health of individuals and populations.

Health indicators may be based on subjective perceptions (judgements made by the person whose health is being measured) or on objective assessments, usually by a

health professional. Although objective measurements are usually of the index type, the subjective/objective distinction does not exactly correspond to the profile/index dichotomy. Historically, objective measures have been preferred as they have been viewed as more valid, being made by those with expertise in 'health', and more reliable, because they use techniques which measure something absolute, and are not dependent on someone's belief and opinion. These assumptions have now all been questioned, and subjective measures such as the Nottingham Health Profile have been found to be valid and repeatable.

There are several reasons why subjective indicators are appropriate and of value to those involved with health promotion activities:

1) It is *perceived*, not necessarily *actual*, situations which result in the adoption of health-related behaviours, including those manifesting as a demand for health care. For example, an alcoholic may make artificial assessments of his position and of the effects of his drinking habits. As long as he does not at least perceive the existence of a problem he will not seek help, whether or not an objective assessment of his physical, mental and social health indicates that they are in a poor state. The subjective indicator of health is a better predictor of behaviour than is the objective measure.

2) Health promotion involves two-way communication and a 'grassroots' approach. It is, therefore, crucial for workers to be aware of, and to understand, the health beliefs and perceptions of the subjects with whom they are working. Only then can programmes be made appropriate and relevant to perceived needs. Moreover, activities which recognise lay beliefs will be more effective as they can tackle issues which are perceived as 'real', in a language known to their clients.

3) Subjective indicators are not restricted by professionally defined scales or terminology. Instead they are based upon lay people's own assessments and personal valuation systems. This is clearly more appropriate for health

Subjective assessments of health are consistent with the overall philosophy of health promotion and they are not restricted by any one professional model of health. They are good predictors of behaviour, and provide an essential foundation for effective planning and communication about health-related issues.

1.6(4) Why evaluate?

There are five main reasons for evaluating health promotion programmes.

1) To ensure that activities are having the desired effect

Without evaluation we cannot know what influences the initiatives have had. Have they had any effect? If so, has the effect been in the desired direction? Knowledge of the effect can be used constructively to improve activities, and to reinforce those that are valuable and worthwhile.

2) To minimise waste of resources

Without evaluation we cannot tell if good use is being made of the finite amounts of time and money available for health promotion. Clearly cost-cutting must not be the only criterion for success of initiatives. If it were, the most successful initiatives would be those ensuring the deaths of people once they reached pensionable age! On the other hand, those involved in health promotion *are* accountable both to the public and to funding bodies for the resources used.

3) To improve materials and methods

Activities may be having a favourable effect (or at least not a detrimental effect), but often they could be doing better. The desired outcome might be achieved but by suboptimal means. Without evaluation we cannot compare different approaches or assess new innovations.

4) To assess the validity of scepticism about the effectiveness of health promotion

Health promotion is a relatively new area of expertise, and as such is exposed to greater degrees of suspicion and opposition than are more established fields and professions. We need to assess the validity of this scepticism and be able to counter it where appropriate. Sometimes we can provide assurance on the basis

of prior research, but in many cases there have been no appropriate previous studies, and so new evaluation studies are often necessary.

5) To assess whether activities are ethically justifiable

By definition, health promotion initiatives aim to affect people's lives in a healthful manner. In doing so they may cause some inconvenience or discomfort. Are such effects justifiable? Do the results of the health promotion activities warrant the personal expense, time and intrusion into people's lives which they may incur? Only by evaluating the activities can we assess whether the effects of a particular approach are justifiable.

For all these reasons it is important to evaluate health promotion programmes. Once again, though, we need to exercise caution.

Evaluation itself costs money: this is especially significant given the chronic underfunding of health promotion initiatives. Moreover, evaluation too may intrude into people's lives and cost them time and effort: it may involve them in the completion of questionnaires, which may be time-consuming and stressful, and in the provision of information which may be sensitive or personal. Often there is no feedback to these participants, and if there is it may be meaningless or incomprehensible to them. Is the inconvenience of the evaluation procedure justifiable?

Both of these difficulties can be dealt with and remedied to a certain extent (Ledwith, 1986), and they certainly do not undermine the many advantages that may accrue from evaluation studies. The point is simply that just as health promotion activities should not be carried out at any cost, neither should evaluation be carried out at any cost.

1.6(5) Issues in evaluation

The evaluation of health promotion initiatives is far from straightforward. Indeed there are difficulties to be encountered at all stages of the evaluation process, from its planning through its execution to the final stage of making recommendations. Two valuable papers (Green, 1977; Baric, 1980) have discussed difficulties relating to

the evaluation of health education. These are, of course, of central relevance to the larger field of health promotion, and so the following discussion incorporates many of the issues identified by these two authors.

1) The difficulty of isolating the effects of a specific health promotion programme

Within the field of health promotion there is often a variety of initiatives involving the same community which aim to influence the same health factors and effect the same healthful change. The problem, then, is to isolate the effects resulting specifically from one of these initiatives. Similarly, in observing a trend in a given index it is problematic to relate this trend with certainty to a given health promotion input. For example, in the UK we have been observing a steady decline over the last forty years in the prevalence of cigarette smoking among the adult male population. How can we assess the relative contributions of health education, legislative and fiscal measures to this trend?

2) The difficulty of integrating different approaches to evaluation

It follows from my broad interpretation of the evaluation process - as the assessment of activities in a variety of ways against a variety of standards - that a range of approaches to evaluation should be adopted. Moreover, workers from a variety of backgrounds may be involved in the evaluation process and in the interpretation of the results. There is thus a problem of integrating the range of expertise and the various approaches which arise from this multidisciplinary activity. There has been some recent progress towards the integration of different approaches. Everly, Smith and Haight (1987), for example, examined ways of integrating behavioural and financial models in the evaluation of health promotion programmes in the workplace, to answer simultaneously the two questions 'Does the programme work?' and 'At what cost?'.

A necessary step towards integrating approaches is the acceptance of standardised procedures and terminology for evaluation. Green and Lewis (1987) have proposed standardisation of this type for the evaluation of health education. However, we are a long way from having standard, accepted terminology and

procedures for evaluation within and across all the component domains of health promotion - and this acts as a barrier to effective and appropriate evaluation.

3) Evaluation must be appropriate to the stage of service development

Within the health (and other) services, health promotion is still at a relatively early stage of development. Evaluators must therefore be careful to avoid making demands inappropriate to the stage of service development, or else the results of evaluation will inevitably be discouraging. Once again we see the clear need for evaluation of *processes*, particularly in relation to the development of new initiatives. Only once the health promotion services are properly primed can we realistically expect them to be effective at achieving the desired impact or outcome.

4) Lack of clearly-defined objectives

While in many health services the aim of an activity is specific - to improve visual acuity, to destroy malignant cells, or to treat dental caries, for example - within health promotion the aim is often seen as the more general one of preventing ill-health and simultaneously enhancing positive health. Now unless an activity has one or more *specific objectives*, by achievement of which it will contribute to the attainment of this overall aim, it cannot be evaluated. It is imperative that these objectives be made explicit at the planning stage and that evaluation is relative to these stated objectives.

5) Resistance to review and assessment

It is often the case that those who evaluate programmes are not those who are actually carrying out health promotion initiatives. This situation has a clear benefit in that the evaluators are likely to have a certain amount of objectivity: their lack of personal involvement with the specific service being evaluated may well free them from potential sources of subjective bias. However, those involved in carrying out health promotion may exhibit some resistance to review and assessment - especially when this is made by someone without expertise in

their profession and therefore unaware of many of the issues in the practice of health promotion.

6) Political and vested interests

Political factors affect the evaluation of health promotion in a number of ways. They determine which programmes and policies exist through both resourcing and other influences. Resource levels also directly affect the scope for evaluation. Furthermore, reports and recommendations from evaluation exercises have to compete for attention and implementation with other calls for political commitment. In other words, politics influence *what* can be evaluated, *how* it is evaluated, and the *when* and *whether* of recommendations being adopted.

7) Time factors

There is a problem of *when* to evaluate, as the outcome of an activity may vary at different time periods after the intervention. Some effects of health promotion are immediate whilst others are slow in emerging. Some effects are transient and others longer lasting. In the absence of prohibitively expensive and time-consuming longitudinal studies, time-related problems in evaluation have to be recognised. These have been described by Green (1977) as 'the dilemma of long vs short-term evaluation':

(a) *Delay of impact* This occurs, for example, when a process of attitude change has to be undertaken before behaviour change can take place. If we evaluate too soon after the intervention then the behaviour change will not be observed.

(b) *Decay of impact* In some cases the intervention will have a more or less immediate effect which decreases over time. If we evaluate too late we shall not measure the immediate impact; and if we do observe an effect we cannot assume it to be permanent.

(c) *Borrowing from the future* Sometimes interventions merely hasten behavioural change - such as smoking cessation - that would have occurred anyway. This may, of course, be of real value, but we have to be careful not to overestimate the benefits of an intervention.

(d) *Adjusting for 'background' secular trends* If the objective of an intervention is to increase the prevalence of a variable, and if this variable is on the increase anyway and we fail to adjust for this, we shall overestimate the benefits of the intervention. If the general trend is a decline in the variable of interest then the benefit of the intervention may be underestimated.

(e) *Contrast effect* A final influence of time occurs when a programme is terminated prematurely, or when the subjects have expectations which are not fulfilled. A consequently embittered group of 'clients' may defy the behaviour advocated, resulting in a backlash effect. Evaluation during, or soon after, the intervention would measure the benefits but not the contrasting backlash which occurred after termination of the activity.

8) Absence of experimental conditions

Scientific experiments demand rigorous conditions, standardisation of environments, and precision of procedure. For the evaluation of health promotion programmes working with communities, however, conditions such as these will not be present. Moreover, we should not insist on total experimental rigour in situations where it is not justified. Health promotion programmes should not be restricted by the demands of evaluators to 'carry out the original plan no matter what', but rather should be allowed to develop to their full potential taking advantage of the expertise and initiative of those implementing them.

1.6(6) Approaches to evaluation

So far I have discussed the evaluation process only in general terms, as if the term 'evaluation' itself is an adequate explanation of what is being done. The process is much more complicated than that, however, and any of a variety of approaches to evaluation may be adopted. When describing an evaluation study it is important to provide answers to the following questions:

- *When* was the evaluation carried out?
- *What* was evaluated?
- *Why* was the evaluation carried out?
- *How* was the evaluation carried out?

1) When was the evaluation carried out?

Evaluation studies which are carried out while the programme of interest is still happening are known as *formative* evaluations, and those which take place after it has ended are called *summative* evaluations. Clearly, as was illustrated by the seatbelt legislation in the UK, attitudes and behaviour are often found to change after a policy is established. Thus negative attitudes detected during a formative evaluation might not be identified by a summative evaluation. Both approaches are valuable.

2) What was evaluated?

Approaches to evaluation may be classified according to the particular aspect of the programme which is to be evaluated: *process*, *impact* or *outcome*. Health promotion programmes are commonly evaluated in terms of impact. Evaluation of this type is relatively easy and inexpensive to carry out, and it helps to provide an answer to the question of whether the programme 'works' in the short-term.

In section 1.6(5), however, I stressed that there should be caution about over-emphasis on evaluating the impact of programmes, and argued for the importance of process evaluation. Although health professionals may be resistant

to critical review of their skills and procedures, this must not act as a barrier to process evaluation.

Outcome evaluation addresses the question 'Does it work?' in the long-term. It is important to distinguish between 'ultimate' outcome (in terms of health status) and other outcomes (such as cognitive or behavioural outcomes) more directly related to a programme's stated objectives. Often it is the latter type which is appropriate for gauging the effects of an intervention.

3 Why was the evaluation carried out?

In section 1.6(4) I listed five main reasons for evaluating health promotion activities. In addition to carrying out evaluation of a health promotion programme for any of these specific reasons, certain general underlying questions need to be answered:

(a) Is the programme relevant and appropriate to the needs of the 'target group'?

(b) How does the porgramme work in practice compared with its proposed effectiveness at the planning stage?

(c) Are the conponent activities effective? Do they in combination form an efficient, functional programme?

4 How was the evaluation carried out?

The decision about how to evaluate is often determined by the availability of resources, and by the feasibility of different evaluative designs. The evaluation of health promotion programmes owes a lot to epidemiological method, and various designs are available.

Basic evaluation can be carried out simply by record-keeping. For example, routine data collected about the uptake of particular services will indicate fluctuations which may be associated with relevant health promotion initiatives and provide an indication of their impact.

The simple evaluation by observing trends over time does not permit us to conclude whether these trends are the result of health promotion activities or whether

they would have occurred anyway. In order to reach the former conclusion a comparison is needed with another comparable location where the intervention of interest is absent. This is known as a quasi-experimental (controlled-comparison) approach. Another comparative design involves comparing the situation of interest with others where there is a similar intervention.

In the comparative designs described above no control is exerted over the situation in the comparison group. Another approach is to have an experimental design similar to that used in a clinical trial. This is a controlled-experimental approach. Subjects are randomly assigned to an intervention group or to a control group. A more complex approach along the same design involves more than two groups, all being exposed to different 'doses' of intervention. Clearly these experimental approaches have limited application for the evaluation of many health promotion initiatives.

Sometimes it would be unethical: how could we justify withholding education about health services, for example, from a group of the population? In other circumstances they might be infeasible: for instance, how could a group of the population be made exempt from legislative or fiscal measures? Moreover, except in certain specific circumstances, such as the use of preventive medication, the 'double-blind' ideal of the clinical trial cannot be achieved in health promotion evaluation: there is, for example, no placebo for a health education intervention. Thus whilst this controlled-experimental design is the most desirable epidemiologically, its applicability to the evaluation of health promotion practice is limited.

The evaluation of health promotion programmes must be carried out in the field, in the settings in which the programmes are taking place. We cannot expect to achieve laboratory conditions, and we should not expect to. This point is made clear by Green *et al* (1980, p 140):

> 'The problem with the more complicated designs is that they usually have to be carried out under highly controlled conditions, which makes behavioural circumstances unusual or unnatural ... what one gains in neutral validity through the more rigorous randomised procedures one may sacrifice in feasibility and generalisability of findings'.

Often, the quasi-experimental approach will be found to be the most appropriate and acceptable.

CHAPTER 2 : OVERVIEW OF THE RESEARCH PROJECT

In the previous chapter, I explored concepts central to health education and examined various approaches to health education practice. In this chapter, I illustrate how my research questions evolved from an examination of these theoretical and conceptual issues, and describe how the questions were addressed in carrying out the research. In addition, an outline is presented of the way in which the various component studies of the project are presented in this thesis.

2.1 DERIVATION OF THE RESEARCH QUESTIONS

As described in section 1.6, the evaluation of health promotion activities may involve any of a variety of methodologies, ranging from simple observation and record-keeping to complex controlled designs. In addition there are many output measures of relevance, and whilst the measurement of behaviour is the one most frequently employed (and often regarded as the gold-standard) a range of other measures - of beliefs, values, attitudes, knowledge, and so on - are also appropriate. Given that there are various acceptable and informative approaches to evaluation, it is interesting to address the question of what determines the adoption of one particular approach rather than another. Several factors are of relevance, including:

the timescale of the study

the resources available

the particular expertise of the researchers

the objective(s) of the programme being evaluated.

This final point is of particular interest: the other factors are usually determined by external constraints, but the objective of a programme is dependent on its planners' expertise and outlook.

Planners are ofetn responsible for the identification of the particular need or problem of interest, as well as for the development of a strategy to meet this need. In turn, the most appropriate evaluation methodology will depend on this planning process.

In the case of school health education, which is usually developed and implemented by educationists, the objectives may be seen as educational, and evaluation carried out accordingly in relation to educational criteria. The success of a health education programme in school might then be assessed either in a formative way - for example by a cumulative description of the organisation and content of the course (perhaps from the pupils' perspective and also that of the teachers) to enable decisions to be made relating to the course structure; or in a summative way - for example by end of term examinations to assess pupils' knowledge about health issues.

Evaluation studies of both these types, carried out in relation to educational criteria, are important for two broad reasons. The first refers to the role of health education within the school curriculum.

Traditionally health education has been a fringe or 'Cinderella' subject in schools, accommodated within the curriculum but awarded low priority and little attention. Over the last thirty years, however, various government publications have recommended a more continuous and prominent role for health education in schools.

For example, the *Cohen Committee on Health Education* (Ministry of Health, 1964), which was set up in 1959, made a series of recommendations including the commendation of health education as an allocated subject in the school curriculum, to be treated in a broad-based manner. It was also considered that more attention should be paid to health education in teacher training.

In 1977, the *House of Commons Expenditure Committee Report 'Preventive Medicine'* (Expenditure Committee of the House of Commons, 1977) reiterated the same points, advocating 'more and better' health education at school, 'supported by more effective community services' and backed up by appropriate arrangements for basic refresher courses of teacher training.

In 1977, also, a discussion document entitled *Health Education in Schools* was published by the Department of Education and Science (DES, 1977). This document prompted many Local Education Authorities to develop policy guidelines for health education in schools, and to produce materials for teachers which met their particular needs and concerns.

The first *national* curriculum development project in health education was *'Health Education 5-13'* (Schools Council, 1977) commissioned by the Schools Council in 1973. Its aim was to establish health education as an integral part of education, not as an area of concern to be set apart or dealt with separately.

Despite these official recommendations, however, health education is still not viewed in all schools as an essential and central component of a child's education. Only if it can be shown to have a role in mainstream education, will health education be given sufficient respect and attention in schools. It follows that there is a need for health education to be evaluated according to educational criteria.

The second reason for advocating the evaluation of health education according to educational criteria is the relative immediacy of some of the output measures of relevance. Although the aim of producing a population of well-educated and well-rounded individuals is clearly a very long-term one, the intermediate stages of imparting knowledge, and of developing understanding and synthesis of inter-related issues, are more immediate.

Peters (1966) has distinguished between 'education as an aim' (in the sense of an end-point, or target) and 'education as a process'. If we view education about health as the latter we can appropriately evaluate it at any stage in the process. This argument is concordant with that presented in section 1.6(5), that measurements of process and of short-term impact are often more appropriate standards for the evaluation of health promotion activities than are assessments of long-term outcome.

The argument so far has presented the case for evaluating health education in schools according to educational criteria. Evaluation of this type often arises from the fact that school health education is usually planned and implemented by educationists

rather than health professionals. However, health education can clearly also be appropriately assessed according to health-related criteria.

Health education is usefully regarded as one of the three component spheres of health promotion (section 1.5), all of which contribute to the overall aim of optimising the health status of individuals and communities by preventing ill-health and promoting well-being. It follows that health education should be assessed according to this aim. Appropriate output measures for this assessment include measures of health beliefs, health-related behaviours, and of variables which are predictive of future health status.

There are thus two complementary questions to be answered concerning the contribution of health education in schools:

(a) Does school-based health education meet the aims of education?

and

(b) In what ways does it contribute to the aim of health promotion?

These questions together form one of the focal areas of interest in this thesis. In addressing them, an investigation is made of the extent to which school health education can be regarded as 'worthwhile'.

The field of health promotion is often referred to in terms of its component parts, as a collection of diverse but inter-related activities. However, health promotion is more than a collection of activities, it is a particular approach to health problems, with its own ideology. There are certain values and procedures which are integral to health promotion initiatives. For example, health promotion programmes should respect and foster autonomy, and should work *with* individuals and communities rather than impose initiatives upon them from 'above'. In other words, health promotion should involve community participation and foster self-empowerment.

This 'bottom-up' approach has been widely employed in projects throughout the UK. It is notable, however, that where health promotion initiatives have involved children and adolescents rather than members of the adult population there has been less effort to make the approach 'bottom-up'. A possible explanation for this is the belief that young people are unable to make rational decisions and thus we should 'do things

for them', 'for their own good'. Another possibility is that there is a lack of information, and thus a lack of understanding, about children's health-related beliefs and concepts, and of how these influence behaviour patterns. This lack of understanding is both a consequence of the absence of 'bottom-up' initiatives with young people and also a factor contributing to it.

Whilst it was beyond the scope of this project to assess young people's rationality and responsibility, an attempt was made to fill gaps in information about their health beliefs. This task was viewed not only as appropriate but also as important, for several reasons.

Health education must be relevant to the levels of awareness and understanding of health-related issues held by the 'target' population - in this case, schoolchildren. These attitudes and beliefs vary from year to year as the children develop and as prevailing social attitudes change. Thus an information base is needed, to illustrate the situation within each age group and to yield a picture of trends. Health education founded on an information base of this sort can then address those factors which have been *shown* to affect the children's health-related behaviour, and can provide the information and foster the development of skills *appropriate* to each stage of development.

The data for such an information base must include standard statistics such as prevalence rates for various health-related behaviours, the proportions of children adopting behaviour patterns at different ages, and the relative importance of different risk factors in each age group. Data of this sort have been collected in several national and regional studies of young people and health, mostly using 'closed' questions in self-completion questionnaires.

A difficulty with the data collected in this way, however, is that they reflect the issues which the researchers themselves perceive as the important ones. The study subjects can only agree or disagree with those issues presented to them. In contrast, 'open' research techniques - whereby the respondents are not restricted by the categories offered to them - *are* concordant with a 'bottom-up' approach to data collection. The

resulting information base consists of the children's *own* concepts and perceptions and complements standard epidemiological data. (Further discussion of this issue is presented in Chapter 4.)

Health education developed from within a data base of this sort could address those issues regarded as important by the children themselves as well as those shown to be of relevance by well-validated epidemiological methods. It could do so using terms and concepts which young people understand, having arisen from the children's own frame of reference.

For all these reasons, the second research focus of the project was to develop a data base of this sort relating to young people in the Glasgow area.

The research questions were:

(a) What are the health-related attitudes and beliefs of young people?

(b) What behaviour patterns do they exhibit?

(c) From what concepts and perceptions have these developed?

Health education aims to effect healthful change in young people - which, in turn, will be reflected in changes in the information base over the years. However, we should be aware on observation of a change in the indices of the information base, that this could have arisen from any combination of many factors. Most notably, primary socialisation factors (section 1.2(1)) have a strong influence.

An issue thus arises concerning the relative roles and impact of home and school influences on the health-related beliefs and behaviour patterns of young people. It is important to know what teachers and parents regard as their roles for health education; and also what effects their respective contributions have on the indices of children's health.

Wetton and Moon (1987) have illustrated the dilemma inherent in this issue about teachers' and parents' respective roles in health education. Their discussion relates to primary schools but is equally relevant to secondary schools. They write as follows:

'Parents may see health education as:
Our job - you get on and do yours - which is to teach them
Our job - except for the sensitive areas which we prefer you to do
Your job - apart from the sensitive areas which we prefer to do ourselves
Doing more harm than good through teaching about certain dangerous topics
The responsibility of trained specialists brought in from the outside
A shared task - we'd like to know what you are doing so that we can help you' (p 49).

Similarly, they continue:

'Teachers may see health education as:
A body of factual content to be put across in specific curricular areas, for example science
Part of day-to-day good habits and practice, about which children need to be reminded
A preventive task with its focus on present and future danger and disease
Part of the 'hidden' curriculum concerned with the development of a strong self-concept, good personal relationships and informed decision-making
The responsibility of someone else, for example, parents, health professionals
Yet another pressure on curriculum time' (p 50).

There is a need, then, to examine the relative roles of school and home influences, and the effects of each on indices of children's health. In short, the following questions are of interest:

(a) What are the roles of the school and the home for health education?

and

(b) What are the relative contributions of home and school factors in influencing the health career of young people?

To summarise this chapter so far, three foci of research interest emerge from a school-focussed examination of the theoretical approaches presented in Chapter 1:

1 **In what ways does school-based health education meet the aims of education and of health promotion?**

2 **What is the pattern of health-related beliefs, perceptions and behaviour among young people in the Glasgow area?**

3 **What are the relative roles for the school and the home for health education, and how do these two factors influence the health-related beliefs and behaviours of young people?**

From these three foci, a number of specific objectives were identified. These are itemised in the following section.

2.2 OBJECTIVES OF THE PROJECT

Three related studies contributed to the research project. The specific objectives of each study are described in the chapters relating to each one. My purpose here is to introduce the reader to the objectives of the project as a whole.

(A) The first focus : In what ways does school-based health education meet the aims of education and of health promotion?

Two objectives were identified in order to address this question.

(A1) To describe the health education being taught in schools in Greater Glasgow in relation to:

(a) The methods and materials being used

(b) The topics being addressed

(c) The amount of health education being taught.

(A2) To evaluate the health education being taught, according to:

(a) Its effects on the health-related knowledge, attitudes and behaviour patterns of young people

(b) Teachers' assessments of the process of health education in schools.

(B) The second focus : What is the pattern of health-related beliefs, perceptions and behaviour among young people in the Glasgow area?

The project objectives for addressing this question were:

(B1) To develop a data base relating to the health concepts and perceptions of young people, and to their health-related beliefs, attitudes and behaviour patterns

(B2) To identify sociodemographic influences on these variables

(B3) To utilise unprompted responses from young people in conjunction with frameworks devised from closed questions.

(C) The third focus : What are the relative roles of the school and the home for health education, and how do these two factors influence the health career of young people?

There were two study objectives to address this question:

(C1) To identify and describe how teachers see their role in health education:

(C2) To assess the effect of home influences on children's health-related beliefs and behaviour, and to compare this with the influence of the school.

2.3 INTRODUCTION TO THE RESEARCH METHODOLOGY

In order to meet the given objectives of the project, the methodology employed had to satisfy the following requirements:

1) Information had to be gathered from school teachers as well as schoolchildren.

2) The study design had to enable an examination of the inter-relationship among the responses from these distinct groups of respondents.

3) The method of data collection had to be innovative, enabling young people to state their own views without prompting or restriction by given categories.

In addition, the methodology had to be epidemiologically sound, and meet the limitations of time and resources.

The cohort of schoolchildren identified as being of particular interest was the 10-11 year old age group (in Primary 6-stage classes). Children of this age are at particular risk of adopting certain unhealthful behaviour patterns (4.1).

Figure 2.1 illustrates the different studies which together comprised the project described in this thesis. The project objectives addressed by each study are listed underneath its description.

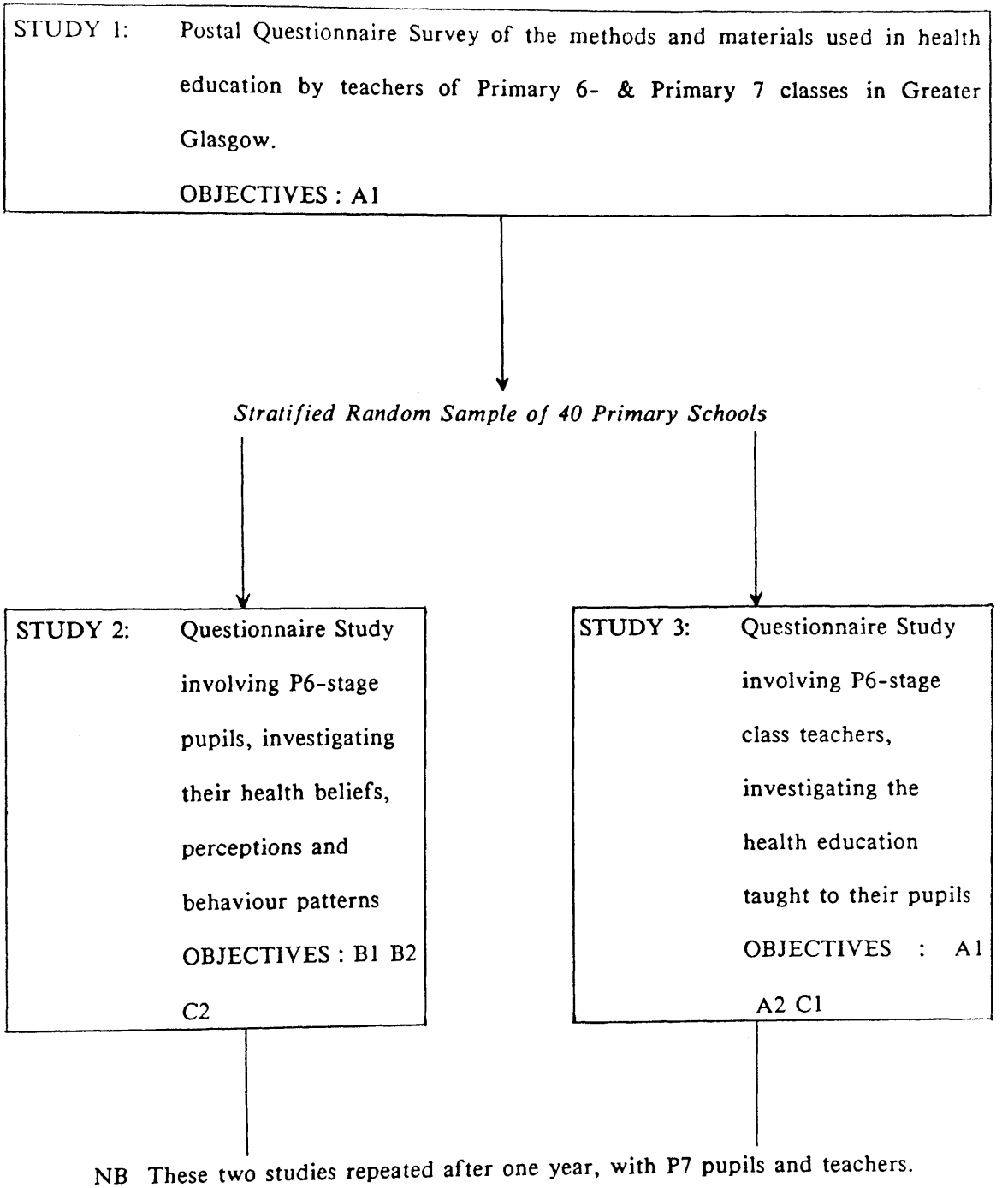

Figure 2.1: Component studies and their objectives

Study 1: Survey of health education in upper primary schools in Greater Glasgow

Ref: Chapter 3

Postal questionnaires were sent to the head teachers and to all class teachers of Primary 6 and Primary 7 classes in the 313 primary schools located within Greater Glasgow. The questionnaires requested information on the amount of health education being taught, the topics addressed, and the methods and materials being used. This survey was carried out in June 1986 with a follow-up for nonrespondents in November 1986.

Study 2: Study of the health-related beliefs and behaviour patterns of upper primary school children in Greater Glasgow

Ref: Chapter 4

A self-completion questionnaire was administered to all children in Primary 6 classes within a random sample of 40 primary schools situated within Greater Glasgow. The questionnaire contained open and closed questions. It was completed by the children in school during April-May 1987. This study was repeated with identical format exactly one year later with the same children, now in Primary 7 classes. Data were obtained concerning the children's health beliefs, attitudes and behaviour patterns. In addition, basic sociodemographic details were collected.

Study 3: Study of health education practice in upper primary schools

Ref: Chapter 5

The class teachers of the children participating in Study 2 were given a self-completion questionnaire to be returned by post. This questionnaire requested details of the health education that had been given to the pupils, and also that which was planned, by the class teacher and from any other source. In addition, the teachers were requested to state their views about health education in schools and its relationship with home influences. This study, too, was repeated in 1988, with teachers of Primary 7 classes.

2.4 FORMAT OF THE THESIS

The three component studies of the project are described separately in the following three chapters of the thesis, which are structured as follows:

1 Introduction

2 Background

3 Aims and Objectives

4 Methods

5 Analysis

6 Results

7 Discussion

Each of these chapters is, thus, a complete presentation of a distinct research study, and may be regarded as a self-contained report. Cross-referencing between chapters illustrates the inter-relationships between the separate studies.

The results of these three studies are brought together in Chapter 6, where conclusions are made in relation to the three foci of the project as a whole. In this synthesis, the inter-relationships between the studies are illustrated, as are the benefits of adopting complementary approaches to research questions.

Whilst the format of this thesis may be regarded as atypical, it has several advantages for the reporting of this project. Given the many component parts of the research, any attempt to combine descriptions of the various approaches adopted was doomed to result in confusion rather than clarity for the reader. Instead I felt that the presentation of each study separately would enable the reader to comprehend and assimilate the component parts. Only with such understanding can the project be appreciated as a whole. Nevertheless, the contribution of the component parts to the whole should always be borne in mind, and the links between the studies are clearly marked within the chapters.

CHAPTER 3 : SURVEY OF HEALTH EDUCATION IN UPPER PRIMARY SCHOOLS IN GREATER GLASGOW

3.1 INTRODUCTION

The survey presented in this chapter describes the health education being taught to 10-11 year old children in schools throughout Greater Glasgow. I have already examined the role of health education as a means of exerting healthful change in the population at large (section 1.4); but underlying this survey (and indeed the project as a whole) is the belief that this role is particularly salient in relation to young people. Young people form an important target group for health education not only in their own right but also because the occurrence and development of health-related beliefs, attitudes, skills and behaviours in childhood influence health problems of the adolescent and adult. This influence may occur in two ways (Kolbe, 1984).

Firstly, during childhood the individual develops general and specific perceptions about himself (concepts of health, health-related values, health locus of control, and so on) and certain specific health-related behaviour patterns which are retained as the individual matures and thereby may affect his health state in later life. Various childhood beliefs, attitudes and behaviours have been shown to be associated with, for example, the onset of cigarette smoking in adolescence (and even adulthood).

Secondly, the occurrence of certain health-related behaviours during childhood may contribute directly to the development of pathologies that are not clinically manifest until adulthood. Of particular importance is the indication that many of the risk factors for heart disease and stroke are developed and displayed during childhood. However, the extent to which these risk factors contribute to

disease in adulthood is not known and studies to investigate the relationship are fraught with methodological difficulties.

Health-related beliefs, attitudes and behaviours which develop in childhood can thus contribute directly or indirectly to an individual's state of health in adulthood. The establishment of healthful outlooks and behaviour patterns among children is, therefore, an essential goal for health education not only to prevent ill-health and promote well-being among the young, but also as a means of enhancing health in adulthood. This is arguably particularly necessary in Glasgow and the surrounding area.

Scotland as a whole has a poor health record in comparison with other developed countries and in relation to other areas of the UK (Smith & Jacobson, 1988); and within Scotland, Glasgow is in the unenviable position of having the highest overall death rates. There are on average 50% more deaths from lung cancer in Glasgow than in Scotland as a whole; and deaths from heart disease and strokes in Glasgow are about 20% greater than for the rest of Scotland. Many of the deaths from these causes are preventable: for example, an estimated 1,800 deaths in Glasgow each year are attributable to cigarette smoking. This poor health record in Glasgow, together with the huge inequalities in health which occur throughout the city, is a fundamental reason for Glasgow's inclusion in the World Health Organisation's 'Healthy Cities Project' (Healthy Cities Steering Group, 1989). It is also a reason for particular emphasis to be put on effective health education in schools, and for implementation of additional interventions such as the Glasgow 2000 project to prevent the onset of cigarette smoking among young people in Glasgow.

The Glasgow 2000 project is a special no-smoking initiative for Greater Glasgow. Its slogan is 'Let's Make Glasgow a No-Smoking City', but it has the more realistic aim of reducing the prevalence of smoking (and smoking-related disease) in the city. Glasgow 2000 is a health promotion initiative rather than an 'educational' programme, and its role is perceived as one of *enabling* - of making it

easier to be a nonsmoker in Glasgow. Schoolchildren have been identified as a primary 'target group', and the Glasgow 2000 project has been instrumental both in raising children's awareness of issues related to cigarette smoking (for example through the 'smokebusters' club) and also in facilitating health education in schools by developing and distributing appropriate materials.

In Scotland, children attend primary schools until they are 11-12 years old, and thereafter they transfer to secondary school. There are seven stages within the primary school (P1-P7), and six within the secondary school (S1-S6). There is no middle school system in Scotland such as exists in England and Wales. There are, however, a number of 'independent' schools which lie outside the state system. These are small in number and selective in intake because the payment of fees restricts their availability to the exclusion of much of the population. Independent schools have, consequently, not been included in this survey.

Within primary schools, class teachers usually have sole responsibility for pupils at a particular stage in school. They have a large amount of autonomy to decide the content of their teaching in accordance with curriculum guidelines, and so they are aware of, and often completely in control of, all that is taught to the pupils for whom they are responsible. Secondary school teachers, on the other hand, have control only over what is taught in their particular area of expertise, and different subject areas are taught in a more-or-less independent manner. Clearly, therefore, to design and implement a comprehensive health education programme is an easier task in primary than in secondary schools - and, of course, from the researcher's point of view it is easier to identify what health education has been taught to primary school pupils than it is to investigate health education given to secondary school pupils.

Several specific projects have been developed for the teaching of health education within primary schools (see section 3.2(2)). Much has been invested in the way of time and resources in the development of these materials. Often the materials have been evaluated in some way, but there is a lack of information about

whether they are actually being used in schools. There is an issue here relating to the distribution and marketing of materials, and a need to investigate what materials are being used and why they are being used.

The survey described here makes a step (and is supplemented by the complementary study described in Chapter 5) towards meeting this need for information on the materials used for health education in primary schools. There is also a more general need for information concerning the amount of health education taught, the content of this teaching, and the methods employed. Such information is obviously more useful if it can be compared with the situation in other areas of the country, or with data collected previously in the same area.

My overall aim in carrying out the survey was to meet some of these needs. The survey takes a broad and general look at primary school health education in order to update previous research and to give a preview to the more detailed and qualitative investigations contained within my project as a whole.

3.2 BACKGROUND

Health education in schools has evolved rapidly over the last forty or so years, with dramatic changes in its format and content resulting both from government recommendations for education and also from advances in the theoretical basis of health education itself. Much research has been carried out to assess different approaches and specific materials for health education, and the results of these studies have had implications for practice.

In this section I describe some of the developments that have taken place in school health education. (Many of the concepts discussed in section 1.3 in relation to health education in general are of relevance here.) After examining these theoretical and policy developments, I progress to describe some of the health education materials that have been developed for teachers in schools. The materials which I describe are only a small selection of the wide range of materials available, but reflect those which are most frequently used at present in the West of Scotland. Finally, I review previous studies carried out in the UK which have examined the health education being taught in primary schools. I am not concerned here with research examining the *effectiveness* of different projects or approaches, solely with *descriptive* studies of the structure and content of health education in primary schools. Of particular interest is a survey carried out in Strathclyde Region in 1982 to examine the methods and materials used for health education in primary schools. This study, hereafter referred to as 'the Strathclyde survey', is described and examined in detail.

3.2(1) The development of health education in schools

Health education in some form has always been taught in schools. From the earliest days, the industrial Sunday and voluntary school movements included matters such as cleanliness and the physical environment as part of their curriculum (McCafferty, 1979), and during this century health education has been taught under other headings such as biology, home economics and physical education.

Traditionally, however, health education has been a private concern of the individual schools and it has never been a subject in the system of public examination. It has had an almost unavoidable presence but not until recently has attention been paid to the type and amount of presence which health education should have in the school curriculum.

When health education is practised with a low level of awareness, objectives are inevitably ill-defined, results unpredictable (and possibly different from the teacher's perceptions), and there is inevitably duplication of effort and even omission of topics as a consequence of the lack of coordination and curriculum planning. Reliance on incidental teaching of health topics, as and when the issues arise in class, is clearly inadequate. Health education needs to be planned and coordinated, and is most effective when it involves active participation on the part of the pupils (Kannas, 1988) in the form of project work for example. Particularly appropriate for health education is the concept of the *spiral curriculum*, in which issues are raised at a level suitable to the particular stage of child being taught and then may be raised again and elaborated at later stage(s) in the school career. This approach is inherent to, for example, the Schools Council health education materials (described in 3.2(2)).

Whilst there are strong and apparent arguments in favour of improving health education in schools, Mitchell (1983) has identified several difficulties peculiar to this task:

1) An apparent failure of education committees to understand modern thinking about health education.

2) The fear of stimulating precocious experimentation in, for example, smoking, drinking, sex or solvent abuse.

3) The fear of undermining parental authority.

4) A reluctance to include sex education.

5) The difficulty of reaching all pupils with a comprehensive programme (for example most boys do not take home economics and a minority of pupils take biology).

6) Difficulties in arranging unconventional modes of teaching (such as small-group discussions) which are recommended for emotional issues.

7) Failure to use appropriately outside contributors (such as doctors, health visitors and the police).

Some of these difficulties are more pertinent to the primary school situation, and others to that of the secondary school. What they illustrate as a whole is that the problems inherent to the improvement of health education in schools emanate from a variety of sources, and are not simply a consequence of the attitudes and ability of individual teachers. Nevertheless, improvement of health education in schools is clearly a desirable objective, and effort is required to overcome the identified problems.

As discussed in Chapter 2, various government documents have recommended a more continuous and prominent role for health education in schools (p 69). There is general awareness of the need for and the importance of health education in schools, but there is less consensus, however, over what is the most appropriate place for health education in the school curriculum.

In schools, health education may incorporate any of three organisational forms (Schools Council, 1976):

Specialist: health education is a timetabled subject taught by one or more specialist members of staff.

Integrated: health education is not timetabled; but relevant material is covered by existing subject departments or as an integral part of core subjects.

Pastoral: tutors carry out health education during tutor periods or other pastoral sessions.

Tones (1982) has emphasised the need for a health education coordinator in schools - someone with special management and affective educational skills. It is preferable if such a coordinator is of senior status in school. Calls for a health education coordinator have been recurrent in the school health education literature.

McCafferty (1979) has described the various patterns of school health education which exist - differences occurring between schools and also between age groups. Health education for infants, age 5-7, tends to be incidental and often leans towards issues such as safety, hygiene and general body care. In the 8-11 year old age group, the curriculum is more likely to be structured, and health education is often dealt with as project work. The importance of good television series for health education with this age group is noted. The extent of health education depends greatly on the interests of the individual teacher but it is unusual for health education to be planned and developed into a programme for the primary school as a whole. This situation is not conducive, therefore, to the idea described above of a 'spiral curriculum' for health education.

The structure and organisation of health education in secondary schools is even more varied, although most cover some aspects of health in timetabled subjects such as physical education, home economics and biology. Details of the secondary school situation are, however, not of relevance here.

Reid (1985) has advocated a pattern of anti-smoking education in schools, in terms of the content and approaches taken. A comprehensive scheme for children aged 10-18 years is proposed, based on 'active' methods and forming a 'spiral curriculum'. For the age group 10-12, health education should be primarily *information-based*, but should also incorporate some exploration of social and other issues, and should be supported by full parental involvement. At the next stage (age 11-13), emphasis should be on the *development of skills* to resist social pressures, and again parents should be involved. In the final stages of compulsory schooling (age 13-16), factual lessons may again be required, but, in addition, 'inclusion of the *psychosocial* aspects in a personal and social education course for all, based on

education for personal growth, is recommended'. Finally, for those age 16-18 who are still at school, discussion of the topic as part of a *lifeskills* course is desirable. This pattern for anti-smoking education illustrates that different approaches are required for different age groups and at different stages of education. Reid expresses a preference for 'mainly educational methods' in health education, but characteristics of the self-empowerment approach (1.4(4)), which involves methods other than the educationally pure, are clearly present. However, the scheme is inadequate in that it makes no mention of the value-driven nature of health education, and the need to promote certain values. Moreover, it is explicitly tailored to the preventive medicine goal of reducing the prevalence of smoking and, as described in section 1.4(4), there are problems inherent to approaches which emphasise purely preventive goals for health education.

The location of health education within the school curriculum is influenced by several factors, including teacher preference, timetabling considerations, class size and ability of pupils. It is important, though, that the position of health education in the curriculum is not determined purely by these mostly 'organisational' factors: consideration must also be made of whether the *effectiveness* of health education is influenced by the context in which it is taught. There is some recent evidence with respect to anti-smoking education that it is. Eiser, Morgan and Gammage (1988) investigated the prevalence of smoking, and factors associated with it, among over 10,000 children from ten secondary schools in Avon, and found that those lessons about smoking which were embedded in the social/health education curriculum seemed to be more successful than those located within science subjects. Classification of the context in which anti-smoking lessons were taught was made on the basis of student recall of lessons. Within the six schools in which smoking was dealt with predominantly within science subjects, the proportion of pupils smoking on a daily basis was 15% whereas in schools where smoking issues were covered within social education, the prevalence was only 10.1%. There was no

influence of the social class catchment area of the schools, as measured by the pupils' reports of their father's occupation.

Taking this evidence from Eiser *et al* (1988), together with awareness of the many social influences on health-related behaviour, the breadth of issues integral to health, and the inadequacy of a purely information-based approach to health education, there are clear reasons for including health issues under the umbrella of *'Personal and Social Education'* (PSE).

Tones (1987b) has examined the relationship between PSE and health education: subject areas which he sees as inextricably linked within the school curriculum. The former he describes as follows:

> 'There are no universally accepted definitions of PSE: however, social and political education, moral education, lifeskills teaching and the pastoral system are viewed here as key components. PSE operates not only through formal teaching and guidance but also through the hidden curriculum.'

The distinction between PSE and health education, as described in section 1.4, is therefore unclear as they have aims in common and adopt similar approaches.

In an earlier paper, Tones (1986b) advocated a specialist role for health education within the education system: that of promoting preventive goals. In other words, the aim of health education would be to contribute to the prevention of disease and disability and to promote appropriate utilisation of the health services. Whilst Tones seems to be reverting to a preventive medicine approach to health education (p 41) here, he does emphasise that one of the main functions of this health education would be to raise awareness of social determinants of ill-health and to foster political action to tackle inequalities in health. In achieving these goals, health education is seen as requiring the support of PSE order to reconcile narrow preventive aims with empowerment strategies and the related goals of developing self-esteem and lifeskills.

The identification of such a specialist role for health education in order to distinguish it from PSE has the danger of returning health education into a narrow medical model, removed from the recent empowerment approaches which have been

shown to be effective in achieving behavioural change. For example, Botvin *et al* (1980) have demonstrated that lifeskills teaching can be effective in reducing the incidence of smoking. A smoking onset rate of only 4% was observed in a group of pupils who received ten 'lifeskills' lessons, compared with a 16% onset in a control group. Separation of health education from such approaches (even with a view of the dependency of health education on them) is clearly unsatisfactory. Given the common subject-matter and similarity of goals, health education can fit comfortably within PSE and indeed, as Eiser *et al* (1988) have shown, can be more effective at achieving its aims in such a setting.

Health education has traditionally had low status within the school curriculum but, as described above and in Chapter 2, government reports over the last 40 years have consistently emphasised its importance. Unfortunately, as Drummond (1987) reports, the most recent government proposals for education (DES, 1987) may have the opposite effect. A new national curriculum has been proposed, relying on academic learning and restricting issues for personal development to only 10-20% of school hours. Reference was made to health education in only one paragraph of the report - advocating that it be taught through foundation subjects such as biology, and stating that it should compete with other subjects for the unplanned curriculum time. The aim of health education in schools is seen as being that of influencing children's attitudes.

There are clear problems with these recent proposals for health education:

1) The placing of health education in a straight academic context returns it to the arena of an information-giving approach - and this approach is inadequate for the achievement of objectives other than a simple increase in knowledge.

2) Only a minority of pupils pursue biology (the proposed medium for health education) after their third year, and so most pupils would therefore be excluded from health lessons. (This argument is not specific to biology, but is relevant to other academic subjects too.)

3) Making health education the remit of science teachers is clearly unsatisfactory, given the important, diverse social and political influences on health.

4) Health education may be more effective if taught within PSE rather than in a science context.

5) The goal of changing attitudes is certainly an appropriate one but it is inadequate to view this as the only, or even the primary, aim for health education. Moreover, attitude change will not be achieved simply through processes of information-giving (see point (1)).

Therefore, whilst the proposed plans for curriculum development are receiving resistance from people involved in many subject-areas, those who care about the health of young people and are particularly concerned with education to prevent ill-health and promote well-being must voice specific objections to the implications of these proposals for health education.

In addition to the debates concerning the most appropriate *place in the curriculum* for health education, there have been some discussions in the literature exploring various theoretical *approaches* to health education. Tannahill and Robertson (1986) have presented an evolutionary sequence of health education as follows:

1) Traditional approach: aimed at the prevention of disease, by the provision of education in a 'morally acceptable' way. Emphasis is on the physical aspects of health. The positive dimension of health is neglected, as are the social and political aspects. Education is directed at individuals, with communication going solely in the one direction - from provider (medical expert) to recipient. Individuals are regarded as being free to choose their desired pattern of behaviour. Appropriate, or 'rational' behaviour is defined according to medical criteria.

2) Transitional approach: recognises limitations of the knowledge-attitudes-behaviour sequence, and of attempts to change behaviour through the provision of information. This approach, then, pursues behaviour change through 'irrational' means, and other efforts such as shock tactics to manipulate behaviour.

3) Modern approach: aimed at the enhancement of positive health as well as the prevention of disease, through the adoption of a range of educational methods. Attention is paid to the various facets of health, to collective as well as individual health, and to societal and political issues. Education is a two-way process, and thus takes into account lay as well as professional viewpoints. It is recognised that individuals are often not free to choose their desired pattern of behaviour, and that behaviour which seems 'irrational' may be appropriate or rational in context. This is, clearly, the preferred approach to health education.

Tannahill and Robertson's discussions are not specific to health education in the school setting, but certainly are of relevance here. Tannahill (1989) has recently presented a complementary evolutionary sequence, progressing from *disease-orientated* health education (with initiatives centred on specific health problems, such as coronary heart disease), through a *risk-factor orientation* (where programmes are planned along the lines of single risk factors, such as smoking), to *health-oriented* health education (whereby programmes are designed in acknowledgement of the philosophical and organisational desirability of prioritising by key community settings and groups rather than specific diseases or risk-factors). His advocated health-orientated approach points to the planning of comprehensive, sensitive programmes of health education in the school (in keeping with recent curriculum development work) and elsewhere, rather than the 'slotting-in' of a disjointed series of specific programmes to schools and other settings.

The analyses and syntheses of Tannahill and Robertson (1986), Tannahill (1989), and Tones (1981a, 1986a, 1987a) (1.4(4)) provide important bases for the planning and development of health education in schools, illustrating limitations of various approaches. They demonstrate the need for a broad focus rather than concentration on risk-factors and disease, and for innovative educational method.

Kannas' (1988) review of research into teaching methods for anti-smoking education reaches the same conclusion. He compares the 'traditional' teaching model, emphasising knowledge, with the 'psychosocial' approach, involving the

development of skills, self-esteem, value clarification, and consideration of the contexts in which health-related behaviour develops. Results of the research assessing these methods have been contradictory, but some general conclusions can be drawn. The psychosocial approach is seen to have many advantages over the traditional model although variations between schools must be recognised, as must the limitations of evaluation studies which assess outcome in experimental settings, neglecting issues relating to the process of health education and to the impact on effectiveness of health education carried out in routine, rather than experimental, settings.

Kannas also describes the gulf between the findings of research studies and their adoption in practice. He states:

> 'I am inclined to claim that the results and experiences of implemented health education programmes dealing with smoking have profited science rather than school. By that I mean there is a great deal of scientific knowledge which no one has used for normal school routine or for development of the curriculum.'

Given an awareness of the merits of different approaches to health education, we are now in a position to explore the relationship between theory and practice and to examine the materials available for health education in schools.

3.2(2) Materials for health education in schools

The Schools Council Health Education Project (SCHEP) (Schools Council, 1977). This was the first national curriculum development project in health education, and was commissioned by the Schools Council in 1973 as part of the movement of change and reform in the school curriculum. The Health Education Council (HEC) gave its support and help to fund the national dissemination of the programme. It is a programme of health and social education composed of two parts: 'All About Me', for 5-8 year olds, and 'Think Well' for 9-13 year olds.

Although there have been a number of projects (some of which are described below) since then which have sought to promote health education within

the curriculum, SCHEP helped to introduce a planned curriculum for primary school health education as an integral part of education, not as an area of concern to be set apart or dealt with separately.

SCHEP is based on the conviction that health education is largely concerned with influencing behaviour. It states that the major aim of health education 'should be to help children make considered choices or decisions related to their health behaviour'. The curriculum is described as 'spiral', stress being placed on providing appropriate inputs at appropriate times, on continuity and coordination over the age range, and on flexibility to adapt and develop.

The projects are very much in line with the developments in the theory of health education outlined above (3.2(1)) and with the self-empowerment approach to health education (1.4(4)). In particular the idea of self-concept is central, and the importance of self-esteem emphasised. Value clarification is advocated to assist pupils in developing decision-making skills so that they might make more informed and autonomous health-related choices. Health education is viewed as an integral part of formal and informal education, with an important contribution to make to socialisation.

Jimmy on the Road to Super Health (Calman & Carmichael, 1981). This programme was written and developed by a multidisciplinary team working within Strathclyde. Their aim was to design a health education material for the primary school with specific reference to the problem of early smoking behaviour.

'Jimmy' was designed to be taught as a centre-of-interest project, with health as the principal theme. The project takes the form of a 7-part serialised story involving Jimmy's struggle towards adopting healthful attitudes and behaviour patterns. It has an extensive anti-smoking component which is integrated within the overall programme, and also provides the opportunity for the development of personal and social skills such as the development of self-esteem and an awareness of peer pressure. Although they emphasise the flexible nature of the programme in relation to content, the authors state that for 'maximum impact' the programme

should be taught as a whole (Calman & Carmichael, 1981) and it 'should ideally be used over one term' (Carmichael *et al*, 1984).

Good Health (Jolly & Goodsell, 1976). This material was developed for use with 9-13 year olds. It comprises four units: 'Our Bodies', 'Our Safety', 'Our Families', and 'Our Lives'. Each unit is self-contained, but the four fit together to make up the complete programme. Again, a centre-of-interest approach is taken, relating health to other subjects in the school curriculum. Jolly and Goodsell do not proscribe a 'correct' way for teacher to use the programme, but rather state that the way in which the work is organised depends upon the wishes of the teacher. Each unit consists of a workbook; a teacher's guide; and a set of cards comprising information cards, glossary cards, further study cards and assessment cards. The assessment cards test what the pupils have learnt from the unit, and thus constitute a method of evaluating the programme.

Education for Healthy Living (Strathclyde Regional Council Department of Education, 1980). This initiative meets three distinct needs: firstly, it provides guidelines for the formulation of health education policies in primary schools; secondly, it includes a project ('Billy Hughes') for children in Primary 6 or Primary 7; thirdly, it lists resources appropriate to different issues and to various ages of primary school child.

The programme indicates themes appropriate to different stages in the primary school, from Primary 1 through to Primary 7. Issues such as self-concept are dealt with in a basic way with younger children, and developed as the children progress through the school.

The focus of this programme is on lifestyle, with emphasis placed on the development of lifeskills and not merely on the prevention of ill-health. The approach taken is described as follows:

> 'Health education is not just about disseminating information. It is not about exhortation. It is concerned with increasing a child's capacity to deal more effectively with the business of living'

Little attention is paid to environmental influences on health and health-related behaviour.

'Billy Hughes' is a story about a boy who lives an extremely unhealthful life. However, on being chosen to represent his school in a relay race, he has to 'mend his ways'. The processes of change, and the consequent effects on his self-esteem and relationships with others are described. (There are many similarities between this tale and that of 'Jimmy on the Road to Super Health'). Although clearly based around health issues, this project provides opportunities for integration with other subject areas such as mathematics, biology, art and language development.

Other materials for health education are abundant. There are, of course, other specific packages available in the UK which are not widely used in the West of Scotland - the HEC's 'My Body' project is an example. In addition, there are other written resources in the form of books or leaflets which deal with health issues.

Television and radio broadcasts provide an important resource for health education. The ITV series 'Good Health', in particular, is relevant to children in upper primary schools and gives comprehensive coverage of many health issues. There are also several videos designed for use with children.

The Glasgow 2000 project has developed Project Packs for primary and secondary schools. These include not only materials for anti-smoking education but also a list of written resources and videos relevant to education about smoking-related issues. These Project Packs have been distributed to all schools in Greater Glasgow.

The materials for health education in schools are plentiful and varied. They fit in with the theories of health education in different ways and to different degrees. What, then, determines which materials are used by a teacher? Is there any pattern to the way in which materials are used? Very few studies have been carried out to address these questions.

3.2(3) The practice of health education in schools

In contrast to the extensive and expanding literature examining the theoretical basis for health education in schools, little data has been reported about actual practice in schools. There have been some reports by school inspectors (SED, 1965, 1979; DES, 1980) which have looked in a general way at school health education; surveys have been carried out for local Education Departments (indeed, a recent survey of health education practice in Secondary schools in Greater Glasgow has recently been carried out for the Glasgow Division of the Regional Department of Education); but only a very few published papers have provided any information on the matter.

The surveys of cigarette smoking among secondary school children in Great Britain, carried out for the OPCS, have included some basic questions asking respondents about the health education they had received in school during the twelve months prior to the survey. In 1984, 36% of the pupils in the Scottish sample had received some education about cigarette smoking during the previous year. The corresponding figure for pupils in England and Wales was 33%. Anti-smoking education was not distributed evenly throughout the secondary school. Older pupils were more likely to receive it (41% of pupils in S4 classes had had some education about smoking during the previous year, compared with 23% of S1 pupils) (Dobbs & Marsh, 1985).

The subsequent survey carried out in 1986 (Goddard & Ikin, 1987) included a slightly more complex set of questions about the health education received, comparing teaching about smoking in the context of other health education topics. Overall the pattern was one of a greater amount of health education teaching than was observed in 1984. In Scotland, 43% of pupils had received some health education during the previous twelve months. The corresponding figure for England and Wales was 42%. Education about cigarette smoking received relatively little coverage in comparison with the other topics listed, namely 'dental care', 'healthy eating', 'sex', 'drugs and alcohol' and 'general health and hygiene'. The

proportion of pupils in Scotland who had received each type of lesson ranged from 41% (drugs and alcohol) to 63% (healthy eating). Older pupils were more likely to have received education about drugs and alcohol, sex, and smoking whereas the younger pupils were more likely to have had lessons about the other three issues.

Nutbeam *et al* (1987), have examined the pattern of health education teaching in secondary schools in Wales, looking not only at the topics covered but also at the materials used for health education. There was widespread use of curriculum projects (as described in 3.2(2)) , with 'smoking' and 'nutrition' receiving the most comprehensive coverage of the sixteen listed topic areas. Issues concerning 'relationships' and 'parenthood' were very poorly covered in comparison.

There are problems with this approach to assessing the practice of health education in terms of issues or topics covered. Balding, who has designed some of the better known questionnaires used to investigate the relative importance placed on different topics by teachers, pupils and parents, has pointed out a disadvantage of this approach (Balding, 1979). These questionnaires may limit people's perceptions of health to the list of topics presented. Health may then be viewed only in terms of this limited list, without recourse to a holistic view and attention to the interlinked facets of health. There are also other disadvantages to the topic-based questionnaires (Massey & Carnell, 1987):

1) Respondents may differ in their interpretation of the 'content' of different topics.

2) All topics are given equal weighting.

3) There is no attempt to examine the manner or depth of coverage of different topics.

These criticisms are not relevant to all topic-based questionnaires - for example, the survey of Nutbeam *et al* examined depth of coverage simply by asking teachers to indicate whether their coverage of each topic had been 'comprehensive' or merely 'adequate'. Topic-based questionnaires can of course incorporate a range of questions to expand upon those asking about coverage of listed topics, or they

can be used in conjunction with other measurements. Their use is central to summarising the content of health education in schools.

Information concerning the practice of health education in primary schools is even more sparse than that relating to secondary schools. However, of direct relevance to this project are the results of a survey carried out in 1982/83 to examine the teaching of health education in upper primary schools within Strathclyde region (Deans *et al*, 1985). This survey, 'the Strathclyde survey', is described in the following section.

3.2(4) The Strathclyde survey

The Strathclyde survey was carried out during the school year 1982/83, as a component of some extensive research and development work concerning upper primary school health education within the region. The survey is reported in detail by Deans *et al* (1985), but as it forms the basis of my own survey I shall provide a full summary of it here.

The aim of the survey was to describe the health education being taught to pupils in Primary 6 and 7 classes, in terms of the teaching method employed, the materials used, and the amount of coverage given to certain health issues.

Data was collected by postal questionnaires, largely of closed-question format, sent to the headteachers of all the primary schools in Strathclyde in October 1982. The questionnaires were for completion by all teachers with Primary 6- or Primary 7-stage pupils in their class. In addition there was a short form to be completed by the headteacher. A postal reminder was sent to all the schools from which no response had been received by a specified date. This follow-up approach boosted the response rate from 49% to almost 83% of the schools, and yielded a total of 2127 completed class teacher's questionnaires.

The main findings of the survey were as follows:

Overall, 90% of the teachers indicated that they were teaching some health education. For many of these teachers (39%) this involved purely 'incidental'

teaching. A substantial proportion (32%) were, on the other hand, taking a structured approach to their health education teaching by either adopting a centre-of-interest method or teaching about health as a 'project'. 13% a combined incidental teaching with a structured approach; 11% taught about health within their school's own framework; and less than 4% used TV programmes.

'Jimmy on the Road to Super Health' was the individual project most widely used and although there was extensive variation in usage across the region, it was used by 25% of teachers overall. Other popular materials were 'Good Health' (16%), and 'Education for Healthy Living' (16%). There was extensive use of TV and Radio programmes (by 26% of teachers), and of health leaflets (25%). The researchers expressed concern that the figure for use of 'Good Health' might be an over-estimate as there was some confusion among respondents between this project and the ITV series of the same name.

Teachers were asked to indicate whether their health education included teaching on diet, smoking, alcohol, glue-sniffing and drugs. Overall the proportions of those teaching health education who tackled these topics were 78%, 72%, 26%, 36% and 20% respectively. In other words, there was quite extensive coverage about nutrition and cigarette smoking but limited teaching about the other three issues.

In their discussion of the survey, Deans *et al* have commented on two limitations of the study. Firstly, they have expressed concern about the possibility of *response bias*, but gained some comfort from their reasonably high response rate of 83%. This is indeed a very acceptable level of response for a postal survey, but is low enough for the possibility of a substantial influence from response bias. However, no data are presented on known characteristics of respondents and non-respondents to permit an examination of this issue.

Secondly, there is a concern related to the timing of the study. The data collected refer to the health education which the teachers *intended* to teach during the school year as well as to that already taught. Because of the possibility, or likelihood, that some of these intentions were not fulfilled, a sample of the schools

(8% of those surveyed) was contacted later in the school year to assess the accuracy of the teachers' stated intentions. The result of this validation process are reported to show the survey information to be 'substantially correct'. In fact all that these results could demonstrate would be extensive correlation between stated intentions and retrospective reports of behaviour. The assumption made by Deans *et al* is that, given such consistency of response, these are both valid indicators of behaviour.

Despite these acknowledged limitations of the survey, the results are reasonably viewed as providing an accurate reflection of trends in upper primary school health education in Strathclyde in 1982/83. The picture is encouraging, with over 90% of teachers teaching some health education, and more than a third of these using a structured approach to do so. The increased availability of resource materials (3.2(2)), their dissemination at regional and national levels, and the improved provision of in-service training are seen as possible explanations for this substantial amount of structured teaching. The authors concluded their report as follows:

> *".... the findings of the current survey as a whole would suggest that much is now being done within Strathclyde Region's primary schools to try to improve the general health of the population in this area of the Scotland."*
>
> *(Deans et al, 1985)*

One of the objectives of my study was to assess, for primary schools within Greater Glasgow, whether the trends for health education continue to be so encouraging.

3.3 AIMS AND OBJECTIVES

This survey is relevant to the first research focus of the project (p75), namely to assess school-based health education according to educational criteria and also with respect to the aims of health promotion.

The overall aim of the survey was to obtain an up-to-date picture of the health education being taught to children in Primary 6 and Primary 7 classes in primary schools within Greater Glasgow. This aim corresponds with project objective A1 (p 76). A subsidiary aim was to compare this picture with that observed in the Strathclyde survey carried out by Deans *et al* four years previously, in order to examine the changes which had taken place over this period.

The specific objectives of the study were:

1) To describe the teaching of health education in upper primary schools within Greater Glasgow with respect to
   (a) the *amount* of health education being taught
   (b) the teaching *methods* employed
   (c) the health education *materials* used
   (d) the health *topics* covered.
2) To describe the perceptions of teachers of Primary 6 and Primary 7 classes regarding the relative importance of a range of health topics for children of upper primary school age.
3) To discuss changes in the teaching of health education to children in upper primary schools over the previous four years; and also plans for change during the following year.

3.4 METHODS

3.4(1) Study population

The study population comprised teachers of children in Primary 6 and 7 classes in primary schools within the Greater Glasgow Health Board (GGHB) catchment area.

Within Strathclyde Region there are six Education Divisions - Argyll and Bute, Ayr, Lanark, Dunbarton, Renfrew and Glasgow - and a total of 936 primary schools. The GGHB catchment area overlaps with three of these divisions, namely Glasgow, Dunbarton and Renfrew, and contains 313 primary schools. Unfortunately there is no available information concerning the total number of teachers of Primary 6 or Primary 7 classes within the Health Board's area.

The three relevant Divisional Education Officers kindly granted permission to carry out the survey in all of the 313 primary schools. Of these schools, 239 were located within the Glasgow Division, 59 within the Dunbarton Division and 15 within the Renfrew Division.

3.4(2) Data collection

The method of data collection employed replicated that used in the Strathclyde survey (Deans *et al*, 1985).

Data were collected using postal self-completion questionnaires of two types (Appendix 1.1 and 1.2). The first was for completion by the head teacher of the school and the second, rather longer questionnaire, was for completion by the class teachers of pupils at Primary 6- or Primary 7-stages. Both questionnaires were largely of a closed-question format, although on several questions respondents were requested to provide any relevant additional information.

The questionnaires were distributed by post towards the end of the school year. Each envelope contained one questionnaire of the first type and four of the second type. The envelopes were addressed to the head teachers and contained a covering letter explaining the purpose of the study, and requesting that the head

teacher complete his questionnaire and distribute the others to all Primary 6 and 7 class teachers. It asked that completed forms be returned by a specific date in the reply-paid envelope enclosed, and stated that additional questionnaires were readily available if required. Follow-up letters of the same format were sent as reminders to nonrespondents. (Details of the follow-up approaches are presented in section 3.4(7).)

The letterhead contained not only the address of the Department of Community Medicine at the University of Glasgow (from where the survey was being administered) but also the logo of the Glasgow 2000 Project (p 83). The Glasgow 2000 Project receives financial support from various sources including the Strathclyde Regional Council (SRC). Inclusion of the logo, therefore, indicated SRC support and official backing for this area of research. However, it may also have alerted teachers to my specific interest in smoking prevention.

Postal surveys are the most suitable means of collecting data from a large dispersed population within a relatively short period of time. In addition, they involve minimal impingement on the respondents' time and routine, because the questionnaire can be completed when it is most convenient for the respondent rather than the researcher. However, the impersonal nature of postal surveys can contribute to a low response rate. It was hoped that the official nature of our approach through the school head teacher, with the formal support of the Divisional Education Officers, might help to reduce the level of nonresponse.

3.4(3) Timetable

The timetable for the survey is presented below:

03-06-86 : Pilot questionnaires posted to fifteen schools

11-06-86 : Final date for return of pilot questionnaires

Refinements made to questionnaire structure and content

14-06-86 : Survey questionnaires posted to schools not involved in pilot study

24-06-86 : Reminder letter posted to nonrespondents

30-06-86 : Schools close for summer holiday

07-11-86 : Follow-up letter + questionnaires sent to nonrespondents

21-11-86 : Final date for return of follow-up questionnaires

3.4(4) Questionnaire design

The instruments for data collection had to meet several requirements. Firstly, they had to yield the necessary data to meet the study objectives. They had to be *appropriate* to the aims of the survey. One of the aims was to update the work carried out by Deans *et al* in 1982. It was therefore essential that the instruments which I employed be *comparable* to those used in the previous survey. Another requirement was for the questionnaires to be *short* and easy to complete. Because the study was taking place at a busy time of the school year, there would be little opportunity for teachers to complete a lengthy and detailed questionnaire.

The head teacher's questionnaire (Appendix 1.1) was identical in structure and content to that employed in the Strathclyde survey. It asked for basic details about the school (its location and size) and for information on the health education materials currently available in the school.

The class teacher's questionnaire (Appendix 1.2) was also based on the one used in the previous study. However, following the advice of the workers involved in this other study and also of some primary school head teachers and the Divisional Education Officers, some amendments were made as follows:

1 Deans *et al* (1985) reported that there had been some confusion in their questionnaire between the project 'Good Health' (Jolly & Goodsell, 1975), published by Collins, and a booklet also called 'Good Health' which was published by Nelson to accompany the ITV series of the same name. The distinction between these two materials was therefore clarified in my questionnaire.

2 Given the difference in the timings of the two studies with respect to the school year, the wording on the questionnaire was changed from asking about intentions for health education in the *coming* school year to asking retrospectively about practice in the *previous* school year.

3 In the introductory paragraph, the change was made from talking about Strathclyde to talking about Greater Glasgow.

4 Details of the class size were requested for boys and girls separately.

5 One question, requesting details of the sources of information about health education materials, was removed from the previous study questionnaire as it was not relevant to the aims of my study.

6 Four new questions were added to the questionnaire: the first asked about the length of time spent teaching health education; the second about the number of years for which the teacher had been using the health education material; the third related to plans for changing the content of the health education teaching next year; and the fourth asked the teachers to rank a list of health topics according to their importance for children of upper primary school age.

Thus the questionnaire retained in identical format all but one of the questions used previously. The wording on the questionnaire was changed only to reduce a known misunderstanding, and to accommodate the difference in time of year of my study compared with the Strathclyde survey. Four additional questions were added to meet my study objectives.

To summarise, the questionnaire asked teachers whether they had taught any health education in the previous academic year; if so, what methods and materials they had used and how long they had spent teaching health education; what health topics they had covered and what order of importance they would place on various health topics; as well as basic details about the size of the class they taught and their own teaching experience.

3.4(5) Pilot study

During the first week of June 1986 the instruments were piloted to assess the teachers' comprehension of the questions, and whether the questionnaire format enabled satisfactory completion.

Once permission for the survey had been received from the Education Officers, there were several possible strategies available for piloting the questionnaires: it would have been possible to pilot them in schools in which we already had contacts; or in schools based within the Renfrew or Dunbarton Divisions but lying outwith the GGHB boundaries; in a randomly selected subsample of the schools in the study population. Whilst the first strategy, taking advantage of personal contacts within schools, had the advantage of haste in the piloting, the sample would have been small and no assumptions could be made about its representativeness with respect to the study population. The second possible strategy would have involved schools lying in generally more rural areas outwith the geographical boundaries defining the study population. Completion of the questionnaires by teachers in these schools might not be an accurate reflection of their completion by the study population. Therefore, it was decided to pilot the questionnaires on a subsample of the 313 schools located within the study area.

A random sample of 15 schools was drawn from the sampling frame listing all the primary schools within the GGHB area. Each school was allocated a three-digit code, and the sample was then drawn using random number tables. Of these 15 schools, 7 (46.7%) returned completed questionnaires. The other schools gave no

indication of their reasons for not returning questionnaires. None of the schools involved in the pilot study was subsequently involved in the final survey.

3.4(6) Questionnaire amendments

All of the questionnaires returned in the pilot study were completed fully, although there was evidence of difficulty with some questions. Also, during my analysis of the responses it became clear that I required additional information in order to fully appreciate and understand any trends or patterns underlying the teaching of health education in primary schools. Amendments were, therefore, made to the pilot questionnaires for two reasons - to *refine* the existing questions in ways which would facilitated responses and to *add* questions to enable interpretation of the results.

Within the head teacher's questionnaire, the only amendment made to existing questions was to clarify, as for the class teachers, that the 'Good Health' material of interest was that published by Collins.

Several amendments were made to the class teacher's questionnaire, as follows:

1 Clarification was made in questions referring to 'this academic year' that the year referred to was 1985/86.

2 Respondents to the pilot study had indicated use of more than one method for teaching health education, thus the coding scheme for this question (Q4) was changed to accommodate more than one method.

3 In response to Q10, which asked teachers to rank various health topics, there was an issue concerning the 'discreteness' of various topics and uncertainty concerning the content, or subject matter, of each. Therefore, several of the topics were clarified. In addition, this question was positioned earlier in the questionnaire, before the questions listing health points that might have been covered by the teachers, in case my interest in the five points mentioned might influence the teachers' rankings.

4 There were some difficulties for teachers in stating the length of time that they had spent on health education (Q5), and several teachers failed to complete this question. The wording of Q5 was, therefore, changed to enable the teachers to estimate in their own words the length of time spent on health education, rather than being restricted to making an assessment in terms of the total number of hours. With greater freedom in making their estimate, more teachers were likely to complete this question, and the coding of the subsequent, unstandardised, responses could still be made in terms of the total number of hours spent.

5 Questions 7 and 8 caused some confusion, with respondents not always stating for each material employed the number of years for which they had been using it. Responses to these questions were thus often inconsistent, and a preferable approach was to combine the two questions so that the length of use (in years) was indicated next to the listed material. This was the only amendment which directly changed a question used in the Strathclyde Survey.

Additions were made to the questionnaires to complement the existing questions and to facilitate the interpretation of results. Head teachers were asked to state the religious denomination of their school, since religious beliefs may affect attitudes to health in general, and those relating to sex education and 'relationships' in particular.

The class teachers were asked how long they had been teaching Primary 6- or Primary 7-stage, because this would clearly influence the 'stability' of their health education teaching and the duration over which they could have used the health education materials.

A thirteenth topic, 'Growth and Development', was added to the list to be ranked. The topics on this list were based on those used in a previous study (Calman *et al* 1985) which looked at primary school teachers' perceptions of the importance of different topics. 'Growth and Development' had been ranked quite

highly in this other study and was, therefore, included in my questionnaire for completeness. It also is, clearly, a topic very relevant to children in this pre-adolescent age group.

Finally, in the question inquiring about planned changes to the health education teaching (Q9), an additional section was added asking for the teachers' *reasons* for altering their programme. Only with this additional information was it possible to make some interpretation of the teachers' plans.

To summarise, the pilot study resulted in small refinements to the head teacher's questionnaire, and in several changes to the class teacher's questionnaire. The only way in which the changes affected any questions used in the Strathclyde survey, however, was in the combination of the question asking about the materials used for health education with that relating to length of use. All of the other replicated questions were unaltered. Several additions were also made, but did not greatly increase the length of the questionnaire.

As there was no time to assess these questionnaire alterations by carrying out a second pilot study, this amended questionnaire was used in the final study.

3.4(7) Response

The initial approach to schools was made on June 14th, requesting the return of completed questionnaires by June 23rd. On June 24th a letter of reminder was sent to nonrespondent schools requesting them to return the questionnaires before the end of the school year.

A follow-up approach was made in November to those schools from whom there had been no reply in June. Replacement copies of the questionnaire (amended to make clear that they referred to the *previous* school year) were sent out together with a letter requesting the school's cooperation with the study.

The survey, then, can be viewed in two phases with the possibility of returning head teacher's and/or class teacher's questionnaires at either stage. There were, therefore, several possible categories of response to this survey. These are indicated, together with their corresponding response rates, below.

	N	%
Schools within GGHB area	313	
Used in pilot study	15	
Total used in survey (June 1986)	**298**	
Schools responding to letters sent in June 1986	189	(63.4%)
Total sent follow-up letters (Oct 1986)	109	
Schools responding to letter sent in October 1986	42	(38.5%)
Total no. of schools responding	**231**	**(77.5%)**
Of the 189 schools responding to initial approach:		
No. returning completed q'aires of both types	**140**	**(74.1%)**
No. returning completed q'aires of type 1 only	25	(13.2%)
No. returning completed q'aires of type 2 only	3	(1.6%)
No. returning completed q'aires of neither type	21	(11.1%)
Of the 42 schools responding to follow-up approach:		
No. returning completed q'aires of both types	**26**	**(61.91%)**
No. returning completed q'aires of type 1 only	9	(21.4%)
No. returning completed q'aires of type 2 only	0	(0.0%)
No. returning completed q'aires of neither type	7	(16.7%)

The Strathclyde survey (Deans *et al*, 1985) had achieved a final return rate of almost 80% using the same methods as I employed, but involving primary schools throughout Strathclyde Region. Letters of reminder were used in this previous study, too, to boost the response rate.

The final response rate to my study, from schools returning at least one completed class teacher's, questionnaire, was 56.7%. There are several possible reasons for this low response rate and these are discussed in detail in section 3.7(1). However, it is worth pointing out at this stage that the summer of 1986 saw the EIS industrial action being taken by school teachers. Teachers involved in the action would not participate in any extra-curricular activities (which included the completion of questionnaires). Clearly, the atmosphere within the teaching profession at this time was far from ideal for the purposes of this survey. Postponement of the survey was considered, but as the length of time available for the project was limited and the duration of industrial action unknown, it was necessary to press on despite the adverse political circumstances.

3.5 ANALYSIS

The data were analysed quantitatively using SPSSx (Nie, 1983), the Statistical Package for the Social Sciences.

3.5(1) Statistical tests

In accordance with objectives 1 and 2 of this survey (p 104), the first stage of analysis involved *describing* the pattern of health education teaching, and the teachers' perceptions of priorities. In addition to descriptive statistics, the following statistical tests and measures were employed:

1) *The chi-square (X^2) test of association*, as described by Armitage and Berry (1987).

The chi-square test of association tests the hypothesis that the row and column variables in a contingency table are independent. The test statistic used is:

$$X^2 = \sum \frac{(\text{observed} - \text{expected})^2}{\text{expected}}$$

If the null hypothesis (H_0), that the variables are independent is true, X^2 follows a X^2 distribution on V degrees of freedom where

V = (number of rows - 1) (number of columns - 1)

In accordance with convention, the 5% significance level was employed in this study. Therefore, H_0 is rejected when there is a probability of less than 0.05 that the observed association occurred by chance. This means that there is a 5% chance of rejecting the null hypothesis when it is in fact correct (ie an alpha error of 0.05).

In my presentation of results when a chi-square test has been carried out, I have listed the number of degrees of freedom, the value of X^2, and the corresponding probability value at the foot of the table. Yate's correction has not been employed on 2 x 2 tables.

2) *Spearman's rank correlation coefficient, p*, as described by Siegel (1956). This statistic is a measure of association for two variables measured on at

least an ordinal scale. It is employed in situations where the use of the product-moment correlation coefficient r is inadvisable (if x and y are obviously not Normally distributed) or impossible (eg the data consist only of ranks, or of ordered categorical variables). In these situations a correlation coefficient based on the ranks of the data should be used. Two such correlation coefficients are available - Spearman's p (rho) and Kendall's T (tau). Both of these coefficients utilize the same amount of information in the data and thus have the same power to detect associations within a population. The sampling distributions of p and T are such that with a given set of data both will reject the H_0 at the same level of significance. However, as the Spearman coefficient is somewhat easier to compute, and has the advantage of being linearly related to the Coefficient of Concordance (see below), this was the chosen statistic for the present survey.

Spearman's p can be thought of as a simple analogue of the product-moment correlation coefficient, Pearson's r: first the observations are ranked, then the product moment correlation of the ranks (rather than the observations themselves) is calculated. The most convenient formula for computing p is:

$$p = 1 - \frac{6\sum_{i=1}^{N} d_i^2}{N^3 - N}$$

where N = the number of entities ranked and d = the difference between the ranks allocated to an entity.

The significance of p can be tested if we wish to test the null hypothesis that the two variables under study are not associated in the population. When N is > 10, the test statistic follows a Student's t distribution with N - 2 degrees of freedom (Kendall, 1948 pp 47-48). This test is only valid, however, when the subjects whose scores are used in the computation of p are a random sample of the population. As this was not the case in my study, the different subgroups' allocations of ranks are compared simply on the basis of the Spearman rank correlation coefficient.

3) *The Kendall Coefficient of Concordance, W* (Kendall, 1948).

Kendall's coefficient of concordance is a measure of the relation among *several* rankings of N objects or individuals. Whereas Spearman's p and Kendall's T express the degree of association between only two sets of ranks, W expresses the degree of association among K such sets. It is a particularly useful measure of inter-observer or inter-test reliability.

Calculation of the value of W is based on the sum of the ranks (R_j) assigned to each entity by the K observers, and according to the following formula:

$$W = \frac{s}{1/12\left(K^2 (N^3 - N)\right)}$$

where s = the sum of squares of the observed deviations from the mean of R; ie

$$s = \sum \left(R_j - \frac{\Sigma R_j}{N} \right)^2$$

K = the number of sets of rankings, and
N = the number of entities ranked.

A high value of W indicates that the observers are applying essentially the same standard in ranking the N entities. It does not mean that the orderings are *correct*, but their pooled ordering may serve as a 'standard' when there is no relevant external criterion for ordering the entities.

The significance of W may be tested using a X^2 statistic. This tests the null hypothesis that the rankings are not associated with each other at all - a rather pointless exercise in this case where we would inevitably expect some similarity of rankings. The value of W itself provides enough information about the degree of concordance.

The second stage of the analysis (meeting objective 3 - p 104) involved *testing for change* in the teaching of health education over the previous four years. Once again the statistical test employed was *the chi-square test of association* as described by Armitage and Berry (1987). The test procedure has been described above, but its application to the situation being described here should be examined in more detail. Underlying the chi-square test are the assumptions that:

(a) all expected values are 'large enough' (usually taken as > 5)

(b) all the observations are independent.

The second assumption of independence was problematic for this analysis. My purpose was to compare with my own results those results from the Strathclyde Survey which referred to the teaching of health education in the schools which also

responded to my study. The comparison, then, was between the behaviour of teachers in 1982 with that of teachers in exactly the same schools in 1986. In some schools these would be the same teachers but in the majority of cases the 1986 respondents would not have been involved in 1982. The two study populations were thus semi-independent (or semi-dependent).

There is no reason why the chi-square test cannot be applied in this situation. Independence of observations is not a requirement, rather it is an assumption underlying the statistic. By applying it to semi-independent observations I made the test more conservative, making it harder to reject the null hypothesis. Once again the 5% significance level was used, giving a probability of less than 0.05 of rejecting the null hypothesis when it was true.

3.5(2) Hypotheses

The null hypotheses which were tested in the analysis are listed below. They are grouped in accordance with the objectives of the study.

a) H_0 : There is no association between the amount of health education taught by teachers and

   1 the Educational Division in which they are working

   2 the stage of pupil that they are teaching

   3 the amount of deprivation in the area where they are working

b) H_0 : There is no association between the methods used for teaching health education and

   1 the Educational Division in which the school is situated

   2 the amount of deprivation in the area

c) H_0 : There is no association between the materials used for teaching health education and

   1 the Educational Division in which the school is situated

   2 the amount of deprivation in the area

d) H_0 : There is no association between the coverage of different topics by teachers and

1 the Educational Division in which they are working

2 the stage of pupil that they are teaching

3 the amount of deprivation in the area where they are working

e) H_0 : There is no association between the teachers' perceptions of the relative importance of different topics and

1 the stage of pupil that they are teaching

2 the religious denomination of the school in which they are working

3 the Educational Division in which they are working

4 the amount of deprivation in the area where they are working

f) H_0 : There is no association between the teachers' plans for change in their health education programme and the stage of pupil they would be teaching the following year

g) H_0 : There is no difference between 1982 and 1986 with respect to

1 the prevalence of health education teaching in schools

2 the methods used for health education

3 the materials used for health education

4 the topics covered in health education

The variables involved in the analysis did not, generally, involve much transformation of the data from the form in which it was collected on the questionnaire. In some cases (eg 'time spent teaching health education') continuous variables were grouped into categories; and in others, categories were grouped together for the purpose of the analysis (eg the 'no' and 'not applicable' categories combined for comparison with 'yes'). However, in one case a totally new variable - the index of deprivation - was created, from the school's postcode sector.

3.5(3) The Index of Deprivation

In the GGHB ten-year report (GGHB, 1984) an index of 'multiple deprivation' is described. It is based on the presence or absence of each of the following six indices of deprivation:

a) head of household seeking work, permanently sick or disabled

b) overcrowded household (occupancy norm of -1 or more)*

c) household with more than three dependent children

d) household containing only pensionable persons

e) household with single parent and dependent children

f) head of household in socio-economic group 7, 10, 11, 15 or 17**

The index was calculated as follows. Firstly, for each household the presence or absence of each of these indicators was determined from data from the 1981 census. No household in the GGHB area had all six indicators and only 0.03% of households had five indicators of deprivation.

When the postcode sectors are ranked and then sub-divided into roughly five equal groups, or quintiles, according to rank, the proportion of households within each quintile having two or more of the deprivation indices has the following distribution:

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* A measure of the rooms available in relation to the population resident in a household, taking into account the marital status, age and sex of each household member.

** (7) personal service, (10) semi-skilled, (11) non-skilled manual, (15) agricultural, (17) inadequately described.
There are 17 socio-economic groupings in all.

Quintile	% of all households
1 'Least deprived'	0.7 - 10.8
2	10.9 - 19.7
3	19.8 - 29.8
4	29.9 - 36.3
5 'Most deprived'	36.4 - 56.9

For the purpose of my analysis, each primary school was allocated to one of these quintiles on the basis of the postcode sector of the school's address. Those allocated to quintile 1 are in the least deprived areas, and those in quintile 5 are in the most deprived areas.

There are some disadvantages of this index. Firstly, one might argue that some of the variables used in the calculation of the index are not really indicators of deprivation. However, they are the variables used by the census office in their publications, they have a fair degree of face validity and some proven predictive value.

Secondly, calculation of the index was based on data from the 1981 census. Therefore it is five years out of date in relation to this survey. Given that the census is carried out only every ten years, and there is an inevitable time-delay for analysis, it has to be accepted that census data will often be out of date by the time it is used. However, it has the advantage of including all the households in a population and is thus the most robust data set available in terms of completeness and reliability.

It should also be emphasised that the deprivation level allocated to a school is based on the postcode sector of the school's address not from any data relating to the pupils' places of residence. In cases where pupils' homes are not in the same postcode sector as their school, there may be disparity between the level of deprivation of their home environment and that of their school situation. And, of course, any specific home environment may be atypical of the general situation in a

postcode sector as a whole. However, there is very little selective placement of children into primary schools outwith their home locality, and the catchment areas for primary schools are generally quite homogeneous. The index of deprivation is, thus, not only an indicator of the level of deprivation in the area where the school is located but also may be taken as a proxy measure of the relative state of deprivation of the pupils' home environments.

3.6 RESULTS

The results of the survey will be presented in the following sections:

(1) Sample characteristics

(2) Amount of health education taught

(3) Methods used

(4) Materials used

(5) Health points covered

(6) Plans for change

(7) Perceptions of priorities

(8) Comparison with the Strathclyde survey

The issue of response bias is investigated in section 3.6(1). Thereafter, the results refer only to those schools which returned at least one class teacher's questionnaire.

3.6(1) Sample characteristics

There were four possible degrees of response from the 298 schools asked to participate in the study - no response at all (22.5%); response but no completed questionnaires (9.4%); head teacher's questionnaire only completed (11.4%); and at least one class teacher's questionnaire completed (56.7%). The degree of response was found to be significantly associated with the Educational Division in which the school was situated [Table 3.1; $p < 0.05$]. In particular, fewer schools in Glasgow Division returned completed class teacher's questionnaires, than would be expected by chance. However, the degree of response was not found to be associated with the index of deprivation [Table 3.2]. There is, therefore, no indication that schools located in the more deprived areas of Greater Glasgow are either over- or under-represented in the results. Given that there is an association between Educational Division and deprivation level [Table 3.3; $p < 0.001$], with the schools in Glasgow Division being located in more deprived areas, it is important to note that the lower degree of response from Glasgow schools does not seem to introduce a class bias (as measured by the multiple deprivation index) into the results.

Looking now at the characteristics of the 231 schools who made some degree of response to the survey [Tables 3.4 - 3.6] it can be seen that they represent a range of deprivation levels, but are mainly non-denominational schools, in urban locations. Almost two-thirds of the schools are located within Glasgow Division. There is extensive variation in the size of the school roll, but over half of the schools have between 200 and 350 pupils.

Of the class teachers who returned completed questionnaires, 36% taught Primary 6 classes, 44% taught Primary 7 classes, and the other respondents taught composite classes of various types [Table 3.7]. The teachers did not generally have many years experience of teaching pupils in this stage at school, indeed for 30% of the teachers this was their first year [Table 3.8]. Three-quarters of the teachers had between twenty and thirty pupils in their class.

3.6(2) Amount of health education taught

Overall, 89% of teachers had taught some health education during the previous academic year, and there were no significant differences either by Educational Division [Table 3.9], or in relation to the stage of pupils being taught [Table 3.10]. On the other hand, the teaching of health education was seen to be associated with the amount of deprivation in the school's location [Table 3.11; $p < 0.01$]. This was mostly due to schools in the least deprived areas being more likely to teach health education (97% of those in deprivation level 1 had taught some health education). However, the X^2 test for trend does indicate that there is a significant trend in the proportions of teachers teaching health education.

Details of the amount of time spent teaching health education are available for only 156 teachers, because of the 357 who had taught some health education, 46 (13%) gave no response and 155 (43%) gave a response which could not be translated to a total in terms of hours over the school year. Examples of this type of response were *'Around once per week'*; *'First term - August-December'*; *'Impossible to say how long. It consisted mainly of class discussions when relevant points came up in*

the curriculum, the media etc'; and '*Project - several hours per week for about four weeks*'. Of the 156 teachers for whom it was possible to estimate the amount of time spent teaching health education, almost 60% had taught no more than 20 hours of health education during the school year [Table 3.12].

3.6(3) Methods used

The teachers were asked to indicate which combination of four teaching methods they had employed for health education. 62% had used only one method, 32% had used two, and the remaining 6% of those teaching health education had used a combination of three methods. Of the 356 teachers who had taught some health education during the previous year, 94 (26.4%) had done so by incidental teaching only and the same number by centre-of-interest, or project, teaching only. The only other substantial group (17.1%) was that using incidental teaching together with some project work [Table 3.13].

The only method for which there were significantly different levels of use between Educational Divisions was the teaching of health education according to the school's own structured scheme. Teachers working in Dunbarton and Renfrew were more likely to have adopted this method [Table 3.14; $p < 0.001$].

The method used for health education was not significantly associated with the amount of deprivation in the area where the school was situated.

3.6(4) Materials used

Information about the availability of health education materials in the schools was obtained from the head teacher's questionnaires. By far the most widely available project material was 'Jimmy on the Road to Super Health', which was present in 84% of the schools. The only other specific material reported as being available in more than half of the schools was 'Education for Healthy Living' (which includes the 'Billy Hughes' project). Less specifically, library reference books of relevance to health were available in 65% of schools [Table 3.15].

Generally teachers did not use a large number of materials for teaching health education. 34% of those teaching some health education used only one material, and another 35% used two materials. Four teachers, however, indicated that they made use of five of the listed materials, and another three said that they had used seven materials [Table 3.16]. There is, therefore, quite extensive variation in the extent to which teachers intermix the different resources for their health education teaching.

The most frequently used project material for health education was 'Jimmy on the Road to Super Health'. This was so in each of the Educational Divisions, and was used by 44% of all teachers teaching health education [Table 3.17]. Other popular materials were TV programmes (used by 61.5%) and health leaflets (used by 38.5%).

Examining the use of 'Jimmy' in more detail, Tables 3.18 and 3.19 show that this was significantly associated neither with Educational Division nor with the index of deprivation connected with the school. In other words, this material was widely used regardless of the school's situation.

Almost a quarter of the 158 teachers who had used 'Jimmy' during the previous school year gave no indication of the number of years for which they had made use of this material. Of the remaining 119 teachers who had used 'Jimmy', 46 (39%) indicated that this had been the first year during which they had used the material, 66 (55%) had used it for two to four years, and the remaining 7 teachers (6%) had been using 'Jimmy' for five years or more.

3.6(5) Health points covered

The teachers were asked to indicate whether or not they had taught about each of five listed topics - diet, smoking, drugs, alcohol and glue-sniffing. Of these five health points, there had been most widespread teaching about diet (by 81% of all the class teachers) and smoking (by 73%).

The teaching of these points was examined in relation to the stage being taught (whether P6 or P7), the amount of deprivation, and the Educational Division in which the school was situated.

Teachers of Primary 7 classes were statistically significantly ($p < 0.05$) more likely than teachers of Primary 6 classes to deal with each of the topics except diet. For diet there was no association with the stage of pupils being taught [Table 3.20].

By contrast, of all the topics, only for diet was there a significant association between teaching and the amount of deprivation in the school's locality [Table 3.21; $p < 0.05$], with teachers in schools situated in the more deprived areas being less likely to incorporate dietary messages into their teaching.

The teaching of dietary messages was also found to be associated with Educational Division, occurring significantly *less* frequently ($p < 0.05$) among teachers in Glasgow schools than those working in the other Divisions. The only other topic for which there was an association with Educational Division was glue-sniffing ($p < 0.05$). In this case significantly *more* teachers in Glasgow schools were dealing with topic than in the other Divisions, particularly Renfrew [Table 3.22].

3.6(6) Plans for change

An indication of the instability of health education teaching is given by the fact that 42.4% of all teachers said that they planned to change their health education input for next year. Most of these changes involved *increasing* some component of the teaching. In particular, 72 teachers (42% of those planning change) said that they were going to increase their teaching about diet and nutrition, and 68 (40%) indicated that they planned to do more about drugs [Table 3.23].

These plans for change were associated with the stage being taught the following year. Those to be teaching Primary 7 classes were significantly more likely to plan alterations than were those to be teaching Primary 6 classes [Table 3.24; $p < 0.05$]. This association was found regardless of the stage that had been

taught during the year of the survey, and was a general pattern which was not apparent on examination of the health topics separately.

3.6(7) Perceptions of priorities

Thirteen health topics relevant to upper primary school children were listed, and the teachers asked to rank them in perceived order of importance: Rank 1 indicating the most important and Rank 13 the least important topic. It should be emphasised that the distance between any two consecutive ranks cannot be assumed to equal the distance between any other two consecutive ranks. The distance between the points on the scale has no precise meaning, all that is meaningful is their *relative* position.

Although there was quite extensive variation in the rankings given to each topic (each one was ranked as the most important, and each as the least important, by at least one teacher), a fairly consistent overall order emerged. 'Hygiene and Cleanliness' was the topic seen as most important for children in this age group; followed by 'Food and Nutrition' and 'General Body Knowledge'. Topics relating to puberty and the development of relationships were not viewed as very important; and sex education was regarded as the least important of all the thirteen topics [Table 3.25].

Comparing rank orders offered by subgroups of the class teachers, some differences emerged.

Firstly, teachers who had taught Primary 6 during the year were compared with those who had Primary 7 classes. There was a very high correlation ($r = 0.907$) between the respective rank orders, and the only notable difference was for 'Smoking' which had a mean rank of 9th from the P6 teachers, and of 5th from the P7 teachers [Table 3.26].

The second comparison made was between teachers in non-denominational schools and those in Roman Catholic schools. Again there was a very high correlation ($r = 0.863$) between the rank orders. The two topics for which there was

a difference greater than two places between the mean rank allocated by teachers in non-denominational schools and that allocated by those in Roman Catholic schools were 'Smoking', which was ranked 5th and 8th respectively, and 'Growth and Development', ranked 9th and 4th [Table 3.27].

Finally, comparing the rank orders given by teachers working in the different deprivation quintiles, we find very little difference in perceived priorities (W = 0.93) [Table 3.29]. In particular there was a very high degree of concordance concerning the most important topics ('Hygiene and Cleanliness' and 'Food and Nutrition'), and the least important topics ('Sex Education' and 'Alcohol', 'Pollution' and 'Drugs'). There was greater variation for topics perceived as having intermediate importance. For the topics showing most variation in ranking among the different deprivation quintiles ('Safety and the Out-of-Doors', 'Safety and First Aid' and 'Smoking'), there was no indication of a trend in the mean rank allocation from teachers working in the least deprived areas to those in the areas with most deprivation.

3.6(8) Comparison with the Strathclyde survey

An assessment was made of the changes which had occurred since 1982 in the pattern of teaching about health-related issues, by comparing the results from the schools which responded both to the Strathclyde survey and to my survey. The comparison was for responses from the same schools, to the same questions, collected using the same approach but almost four years apart. 103 schools returned completed class teachers' questionnaires in both surveys. This amounted to 452 questionnaires in 1982 and 356 in 1986.

Table 3.30 shows that 90% of the class teachers said in 1982 that they were teaching some health education. In 1986 the proportion doing so was 89.3%. Thus *no* significant change occurred between 1982 and 1986 in the proportion of teachers teaching health education.

However, if we look at the teaching of the five specified health topics (diet, smoking, alcohol, drugs and glue-sniffing) we see that there was an increase in the proportion of teachers dealing with each one. This increase was highly significant for all the topics except for 'glue-sniffing' [Tables 3.31 - 3.35].

Comparison of the methods used for teaching health education shows that the most popular methods among teachers of health education in both years were 'incidental teaching only' (used by 36% in 1982 and 26% in 1986); 'centre-of-interest approach only' (used by 27% and 26% respectively); and a combination of 'incidental teaching + centre-of-interest work' (12% and 18% respectively) [Table 3.36]. Looking at these methods in more detail we see that between 1982 and 1986 there was a statistically significant decrease in the proportion of teachers using incidental teaching only ($p<0.01$); a significant increase in the proportion using incidental teaching in combination with project work ($p<0.05$); and no change at all in the proportion using centre-of-interest work alone [Table 3.37 - 3.39].

Finally, we can examine the pattern of use of different materials for health education [Table 3.40]. The most notable changes are the increase from 1982 to 1986 in the use of 'Jimmy on the Road to Super Health' ($p>0.01$) ; the decrease in the use of 'Education for Healthy Living' ($p<0.001$); and the increased use of television programmes ($p<0.001$).

3.7 DISCUSSION

In this section the survey results are discussed in relation to the objectives of the study, and in the context of the present state of knowledge about health education in schools. Before any implications of the results can be assessed, however, we must examine the limitations of the study and explore the extent to which the results may be affected by a response bias.

3.7(1) Issues relating to methodology and response rate

Of the 313 primary schools within Greater Glasgow in 1986, 15 were involved in the pilot study and the remaining 298 were requested to participate in the survey proper. After two follow-up letters, 231 schools (77.5%) responded to this request - an acceptable level of response for a postal survey. However, since the study involved the completion of two different questionnaires, one by the head teacher and one by the class teacher, there were further 'opportunities' for nonresponse. A response from the school was not an adequate measure of participation in the survey. Instead, the response of importance was the completion of at least one class teacher's questionnaire.

Completed questionnaires were returned from class teachers in 169 schools (56.7% of the total sample). In other words, just over half of the schools in the study population gave a level of response which permitted their inclusion in the analysis. There are several possible explanations for this relatively low response rate.

1) Postal surveys are notorious for yielding only low levels of response even with follow-up approaches. Whenever possible, therefore, other methods of data collection should be used either as alternatives or in conjunction with the postal approach to boost the level of response.

For this survey I required a method of data collection which enabled me to make contact with a large number of schools, located over a wide geographical area,

within a relatively short period of time. Therefore any method involving personal contact was infeasible. The only realistic alternative to the postal survey in the form applied was to make telephone contact in addition to the postal approach. Telephone contact could either have been made prior to the letter or as a 'reminder' to boost the response rate. The former approach was not considered, given that a response rate of almost 83% was achieved in the Strathclyde survey, using only letters as the method of introduction to the study (Deans *et al*, 1985). The latter approach, using telephone contact as a 'reminder', was not employed because my aim was to replicate the methodology of the Strathclyde survey as accurately as possible, by avoiding any personal contact with head teachers or class teachers. Personal contact, even by telephone, would have introduced the possibility of an interaction effect or bias - responses from those schools with which I had had some personal interaction could not have been affected in some way by that interaction.

A second follow-up letter *would* have been in line with the previous study, but was not feasible given my tight time-scale.

2) The teachers' union (EIS) was involved in industrial action at the time the survey was taking place. This action involved the non-participation of teachers in any extra-curricular activities,and there is no doubt that this had a substantial effect on the level of response to my survey. The industrial action was cited as a reason for nonresponse by 46 schools - that is 48% of those not returning completed questionnaires. Whilst we cannot assume that all these schools would have participated in the survey under normal circumstances, it is certainly the case that a substantial proportion of the nonresponse was due to the industrial action.

3) The initial approach to the schools was made during the second last week of the school summer term. The survey was carried out at this time of the year in order that the data yielded would refer to the health education that actually *had been taught*, rather than to the teachers' *intentions* for teaching health education (which might not be realised in practice).. However, the timing of my approach certainly had the disadvantage of landing the questionnaires in the hands of teachers

at the most disrupted and hectic time of the school year. I was asking teachers to complete the questionnaire at a time when their routine is inevitably thrown into disorder by end-of-year activities; and I also left them only a couple of weeks in which to complete the questionnaire. Ten of the schools who responded to my approach but returned no completed questionnaires cited the lack of time as a reason for non-completion.

In addition to these three known reasons for the low response rate are two other postulated explanations.

Firstly, my approach was made only to the head teachers of the schools and I depended on these head teachers to forward the questionnaires to the relevant class teachers. There is no way of knowing whether the head teachers of the nonrespondent schools did this. Even if they did, we do not know how they 'marketed' the study to the class teachers. Dependence on the head teachers for distributing and marketing the questionnaire may have been detrimental to the response in those schools where the headteachers were unenthusiastic or ill-disposed towards the survey.

Whilst it is not possible to bypass the head teacher and send questionnaires directly to the class teacher, it might have been preferable to attach an introductory explanation of the study to the class teacher's questionnaire itself. This method would have avoided total dependence on the head teachers to explain the study. (Again, however, the approach I adopted replicated that of the Strathclyde Survey which attained a higher response rate. Moreover, the head teacher's authority might even be expected to *prompt* class teachers into action).

The final point to be made concerning nonresponse is an extension of this 'marketing' issue. As stated above, class teachers' responses would be influenced by the head teacher's personal attitude to the study. However, in addition, the prevailing perceptions of teachers and the lowly status generally awarded to health education in schools may have had an influence on the response rate. In the letter to the head teachers I emphasised the importance of children's health and explained

the value of health education. However, as long as teachers themselves see health education as surplus to their core curricular activities, we cannot expect them to give priority to research studies of health education.

To summarise, several factors may have influenced the survey response-rate. Whilst postal surveys achieve notoriously low response rates anyway, the situation was worsened in this instance by the timing of the study and by prevailing industrial action in schools. It is also possible that dependence on head teachers for forwarding and marketing the questionnaires to class teachers could have contributed to a lower level of response than that which might be achieved if it were feasible to approach class teachers directly. Finally, it is recognised that the low status of health education, as perceived by teachers, could have influenced their perceptions of the importance of completing the questionnaires. Future health education research involving school teachers should take account of these problems.

The issue of nonresponse is important because we need to know whether the survey results can be generalised to the target population as a whole, or whether respondents differed from nonrespondents in some systematic way.

An examination of the association between response-type and the Educational Division of the school showed that those schools located within Glasgow Division gave a lower level of response than did those situated in Dunbarton or Renfrew. The survey results may, thus, under-represent the situation in schools in Glasgow.

However, there was no association between response to the survey and the amount of deprivation in the school's locality, and so there is no reason to suppose that those schools from which the results are compiled are in any systematic way different to the target population as a whole in the amount of deprivation associated with their locations.

In addition to being reassured that there was no systematic association between response and the level of deprivation in the school's locality, we can be encouraged that there was no religious bias in response. Furthermore, those schools

which returned questionnaires cover a wide range of school size, as indicated by the school roll, giving no indication that the results represent the situation in schools of predominantly small or large size.

We can conclude, then, that whilst schools from Glasgow Division are under-represented in the results there are no reasons to expect that the results are in other ways atypical of the study population as a whole.

No attempt was made to test the reliability or validity of teachers' responses. There was a high level of consistency of response within the questionnaire such that all teachers who reported teaching some health education provided details of their practice and only one teacher who stated that she had not taught any health education gave responses indicating that she had done some incidental teaching about a variety of topics.

This consistency of response does not, however, permit assessment of whether the teachers' reports were valid or reliable and so the results are assessed with the underlying assumption that they *are* an accurate reflection of practice. That this might not be the case is clearly a possibility and one that requires investigation (6.1).

The most likely pattern of inaccurate response is that of over-reporting the amount and quality of health education taught. There is no obvious reason, however, why such over-reporting would be more prevalent in this study than in the Strathclyde survey because of the replication of method. This provides some reassurance of the validity of the results of the comparisons made with this previous study.

3.7(2) Health education in upper primary schools in Greater Glasgow

It is encouraging that 89% of the class teachers involved with Primary 6 and Primary 7 classes had taught some health education during the school year prior to the survey. The great majority of those teaching this age group therefore do have

some involvement with health issues. The picture becomes rather less encouraging, however, when we examine what this teaching of health education involves.

Looking at teachers' estimates of the amount of time spent on health education, 37% said that they had spent no more than twenty hours and another 21% said that they had spent no more than ten hours on health education during the school year. These figures are based on the estimates of only 155 teachers, however, and so may not represent the situation for all those teaching health education. Moreover, the validity of these estimates may be questioned, given that they were made retrospectively and may have been influenced by a desire among the teachers to give a 'favourable' response. The likelihood is that they may be *over*-estimates, and the amount of time spent on health education was even less than that indicated here.

The most 'popular' teaching method for health education was incidental teaching which was used (alone or in combination with other methods) by 58% of those teaching some health education. The term 'incidental teaching' refers to unplanned and unprepared teaching which takes place as and when the teacher perceives it to be necessary or appropriate. It is a kind of *ad hoc* approach, in which issues are usually raised as a consequence of some other event. The teaching of health education in a purely incidental manner thus involves no planning of the issues to be covered, no synthesis across different stages in a school, and no consideration of the most appropriate approaches to health education. This is *certainly* not to say, however, that there is *no* place in schools for incidental teaching about health matters, simply to indicate the inadequacy of incidental teaching as the only approach adopted to health education.

The centre-of-interest approach was equally as popular a teaching method for health education as were purely incidental methods. The centre-of-interest approach is usually seen as the preferred method for health education, because it enables different issues to be covered in a systematic and comprehensive manner, often integrated with other areas of the school curriculum, using materials that have

been evaluated and shown to be effective. This, at least, is the argument in theory. The situation may not be as ideal this in practice: materials may be used neither systematically nor comprehensively, and the projects may not have been evaluated, or not evaluated according to appropriate output measures. A detailed examination of the ways in which project materials are used by upper primary school teachers is made in Chapter 5. Here we must simply be encouraged by the relatively extensive use of project work for health education in upper primary schools - of the teachers who had taught some health education, 26% had used the centre-of-interest method only, and another 29% had used it in combination with one or more of the other methods.

Of all the listed project materials, by far the most popular was 'Jimmy on the Road to Super Health' (Calman & Carmichael, 1981) which was used by 44% of the teachers who had taught some health education. This high level of use was associated neither with the Educational Division in which the school was located nor with the index of deprivation. 'Jimmy' was the most frequently used material regardless of the school's situation.

In a large proportion of cases the teacher's use of 'Jimmy' was a relatively new phenomenon. Of the teachers who indicated how long they had used the material, 30% said that this had been their first year. This recent uptake may reflect the fact that for almost 30% of respondents this was their first year of teaching pupils at this stage in schools. Comparison with the Strathclyde survey of 1982/3 shows that then, too, 'Jimmy' was the most widely used project among schools in Greater Glasgow. Therefore, whilst this material is new to many of the teachers it is not new to the schools and has been taught to P6- and P7-stage pupils for several years.

The second most frequently used project material was 'Good Health', which was indicated by almost 20% of those who had taught health education. However, as described in 3.2(4), there is a problem in interpreting this finding. It may be a true reflection of practice, but it is possible that there was some confusion between

this material (published by Collins) and the booklet which was published by Nelson to accompany the ITV series of the same name. Television programmes were certainly very widely used for health education and were obviously seen to have some benefits over the purely written materials. Notably, the most frequently listed TV programme *was* the ITV series 'Good Health'. There may, therefore, have been some confusion between this programme and the book of the same name, and although I tried to prevent this by stating the publisher next to the book's name on the questionnaire, it is possible that the figure of 20% exaggerates the extent to which the Collins book was used.

Why, then, are some materials used so much more extensively than others? One possible explanation is availability. Of all the materials listed on the questionnaires, 'Jimmy on the Road to Super Health' was reported by the greatest proportion of head teachers (83%) to be available in their school, that 'Jimmy' is widely used simply because it is the most widely available project material. (This suggestion is investigated in Chapter 5). Furthermore, availability might be an explanation for the widespread use of television as a resource.

Another factor which might influence a teacher's choice of material is the subject-matter within it - the topics covered, for example. Five health topics were listed on the questionnaire, and the teachers were asked to indicate for each topic whether they had discussed it in class. These five topics (Diet, Smoking, Drugs, Alcohol and Glue-Sniffing) were listed in the Strathclyde survey questionnaire and included in my questionnaire for that reason. However, although they certainly still had great relevance in 1986 they may be seen as a biased selection of topics, inconsistent with the theoretical development of health education away from disease or risk-factor approach and health-orientated and towards health education and the development of lifeskills. Nevertheless, these five topics are all known causes of preventable morbidity and mortality, and (with the exception of glue-sniffing) are of particular importance in the West of Scotland where the prevalence of Coronary Heart Disease and of many cancers is notoriously high.

An examination of the pattern of teaching about these topics provides some indication of the teachers' preferences for subject-matter. The most frequently discussed of the topics was 'Diet', which was dealt with by 81% of all the teachers. The only other topic mentioned by more than half of the teachers was smoking, which was mentioned by 73% of teachers.

The issue of smoking is central to the 'Jimmy' project. Its relatively extensive coverage could therefore be a consequence of the widespread use of 'Jimmy' - but, again, this seems likely to be an over-simplification of the situation and does not explain the heavy emphasis on teaching about diet. Teachers working in the less deprived areas of Greater Glasgow were more likely to have dealt with the issue of diet than were those in more deprived situations. None of the other health topics showed an association with the index of deprivation: 'Diet' was a special case. Teachers of Primary 7 classes were significantly more likely to have taught about smoking, drugs, alcohol and glue - but not about diet - than were Primary 6 teachers. *All* teachers placed particular importance on the issue of nutrition, and this was especially so for those working in areas with little deprivation.

This simple investigation of pattern of teaching about the five given health topics provides some impression of teachers' perceptions of priorities, with 'Diet' and 'Smoking' being viewed as more important than the other three topics. This impression is supported by the teachers' rankings of thirteen health-related topics, according to their perceptions of the importance of each for children in upper primary school. Much importance is again placed on the issue of 'Food and Nutrition', with the only topic viewed as more important being 'Hygiene and Cleanliness'. 'Smoking' was ranked considerably higher than either 'Drugs' or 'Alcohol'. (Glue-sniffing was not included in this list). Teaching practice, in relation to these issues at least, therefore seem to reflect the teachers' perceptions of the relative importance of different issues.

There was a very high degree of consistency (as measured by Spearman's rank correlation coefficient, p, and Kendall's coefficient of concordance, W) in the rank orders allocated to the thirteen topics by different subgroups of the sample. This does not mean that these rank orders are in any way 'correct' (Kendall, 1948). Instead it indicates that, regardless of their various individual situations, the teachers have applied more or less the same standards, or criteria, in ordering the topics. Kendall (1948), suggested that when W is significant (and the different rank orders are thus shown to be *inconsistent*) the best estimate of the 'true' ranking of the N objects is provided by the order of the various sums of the ranks, R. Where there is a high degree of consistency among the various rankings, as in this study, the rank order calculated from the study population as a whole may be viewed as the 'best' estimate. This order is presented in Table 3.25.

The consistency of the rank orders from various subgroups may also be taken to indicate that the teachers distinguished between the various topic 'buckets', the issues contained within each of the thirteen listed topics, in a similar way. We have no means of identifying the basis for decisions relating to the *contents* of the 'buckets', but can gain some reassurance that the teachers did view the various topic as quite distinct. That respondents may not interpret the different 'buckets' in a similar way is one of the problems with topic-based approaches (Massey, 1985).

On examining the relative importance placed on the thirteen topics, it is striking that those topics which were allocated to high ranks are the 'traditional', fairly uncontroversial issues such as 'Hygiene and Cleanliness' and 'General Body Knowledge'. They are the issues that can be dealt with in a factual, scientific manner. By contrast, the more personal value-laden topics, such as 'Relationships', 'Drugs' and 'Sex Education' were seen as less important. Health education is *necessarily* both value-driven and value-laden. This is often recognised, however, and there are some indications here that the teachers placed less importance on those areas which are particularly heavily value-laden. Avoidance of these issues

inevitably results in health education being less effective and less comprehensive than it should be.

Comparing teachers of Primary 6 classes with those of Primary 7 classes, the only sizeable difference in the importance placed on topics was for 'Smoking' which was placed ninth by the former group and fifth by the latter. We saw above that teachers of Primary 7 classes were generally teaching about more topics than were the Primary 6-stage teachers, *except in the case of cigarette smoking.* This difference in practice does not seem to be associated with different perceptions of priorities held by teachers of the different stages but, rather, represents a generally greater amount of attention given to health by Primary 7 teachers. There is, however, a very significant change in the perceived importance of the issue of smoking. This specific difference in the perception of teachers according to the stage of pupils being taught will be examined again in subsequent chapters in relation to changes in the beliefs and behaviour of the children themselves during the transition from P6 to P7 classes.

3.7(3) Changes in the picture from 1982 to 1986

One of the objectives of my study was to update the results previous survey of the methods and materials used for health education in upper primary schools located in Strathclyde region during the academic year 1982/83 (Deans *et al* 1985). Those schools which responded both to this Strathclyde survey and to my survey in Greater Glasgow were involved in the comparison.

It should be noted that, because I was comparing the same schools, the two samples were not independent and the same teachers may even have completed the questionnaire on both occasions. I had no means of ascertaining the extent to which responses came from the same teachers because individual teachers were not identified on the questionnaires. However, we know that 47% of the teachers responding to my survey had taught upper primary school children for less than four years and thus could not have participated in the previous study. The samples

were, thus, regarded as semi-independent and, as described in section 3.5(1), the chi-square test of association used to test for change.

The method of data collection was the same in the two studies and although the questionnaires employed were slightly different, the questions used for this comparison were identical. There is one factor, however, which may have affected the comparability of the results and that is the timing of the studies. The Strathclyde survey was carried out towards the start of the school year, and therefore referred to *intentions* to teach health education; whereas the survey described here took place in June and asked *retrospectively* about teaching practice during the school year. The Strathclyde survey did involve validation of the reported intentions and found them to be 'substantially correct' on a sample of cases. No explanation is given by the authors, however, of either the sampling method used of the meaning of 'substantially correct'. As described above, (3.7(1)), my study did not involve any additional activity to assess the validity of the responses given. Therefore the results are compared here on the assumption that the statements of intent (given in 1982) and the retrospective statements of practice (given in 1986) are both valid indicators of the health education taught.

The proportion of teachers involved in health education did not change between 1982 and 1986. In each case, 10% of teachers taught no health education at all. There *were* significant changes in the teaching practice and in the content of the health education, however, which indicate that those teachers who were teaching health education in 1986 were doing so to a greater extent than those in 1982.

Looking first at the methods used for teaching health education, we see that there was significantly less dependency on purely incidental methods in 1986 than in 1982. Fewer of the health education teachers were using this method alone, and significantly more were using it in combination with centre-of-interest work. This is a very encouraging trend because, whilst dependency on incidental teaching is inadequate to ensure comprehensive and integrated coverage of health-related issues,

incidental approaches are important for dealing with points as they arise in a manner complementary to an organised health education programme.

There have been changes too, in the materials used for health education in upper primary schools in Greater Glasgow. 'Jimmy on the Road to Super Health' was the most popular project material used in both 1982 and 1986, and its use became significantly more widespread over the intervening years. This increase in the popularity of 'Jimmy' was balanced by a decrease in the use of the 'Education for Healthy Living' material. We cannot be sure of the reasons for this, but some possibilities may be suggested:

1) 'Jimmy on the Road to Super Health' may have been the most readily available material in Greater Glasgow over this period. This is likely because the Glasgow 2000 project distributed two copies of 'Jimmy' to every primary school in Greater Glasgow in 1984, so we know that it was widely available in these schools. The strength of this explanation could be tested by another survey involving schools in the other divisions of Strathclyde Region, (and thus those schools which are outwith Glasgow 2000's remit) to see whether there was a comparable increase in the use of 'Jimmy' in these schools. If there was, then the effect of Glasgow 2000's distribution of 'Jimmy' may be questionable.

2 There may be something inherent to the 'Jimmy' package which makes it more attractive to teachers than are other health projects. Certainly teachers' assessments *were* taken into careful consideration during the development of 'Jimmy' (Calman *et al* 1985).

3 There may have been a snowball effect such that the material with which schools were already familiar became used by new teachers and their colleagues simply because it had been used before. If this were the case, the increased use of 'Jimmy' would reflect neither some inherent benefit of the package, nor its increased availability, but simply a kind of 'better the devil you know...' attitude.

There is no means of determining from this survey which of these suggested explanations is the most likely. However, some insight may be gained from the detailed investigations in study 3 (Chapter 5).

The final comparison made between the 1982 results and those of my survey related to the teaching of specific health topics. For each of the five topics listed, a significantly larger proportion of teachers dealt with them in 1986 than in 1982. This increase was least significant for the topic of 'glue-sniffing' - a very topical issue in the early 1980s, but one which has gradually become rather overshadowed by media emphasis on other issues (particularly the issue of nutrition).

To summarise the results of the comparison, over the four years from 1982 to 1986 there was no change in the proportion of class teachers in upper primary schools in Greater Glasgow who taught some health education to their pupils. Those teaching about health were, however, covering more issues. Moreover, there was a decrease in the proportion of those teaching health education who depended purely on incidental methods, and a rise in the proportion combining incidental teaching with centre-of-interest work. Although 'Jimmy on the Road to Super Health' was the most widely-used project in 1982 (being used by 33% of teachers of health education), it became even more widespread over the next four years (was used by 44% in 1986). Some reasons have been suggested for this, but the factors which determine why teachers choose a particular project material will be examined in more detail in Chapter 5.

3.7(4) Relating practice to theory

The picture of health education practice painted by the results of this study is to a large extent determined by the questionnaire used for data collection. Two characteristics of the questionnaire, in particular,have affected the information yielded.

Firstly, the questions were largely of a closed-question format and, therefore, only provided details relating to the particular components of health

education listed on the questionnaire. As a consequence we have no idea whether teachers were involved in the development of lifeskills and of self-esteem, for example, as well as teaching about diet, smoking, drugs and alcohol. Similarly, it is impossible to tell from these results whether there were any issues not listed on the questionnaire which teachers value more highly than 'Hygiene and Cleanliness', 'Food and Nutrition' or 'General Body Knowledge'.

Secondly, the questionnaire was predominantly topic-based, and as described above (3.2(1)) by Massey and Carnell (1987), there are some disadvantages with this approach. It inevitably yields a segmented disease or risk-factor view of health education, and thus the practice of health-oriented or holistic health education could not be detected by this questionnaire. Moreover, without additional questions, this approach does not permit examination of the method or extent of coverage of the different topics - the survey results show that the topic 'Diet' was taught by 80% of teachers but we have no indication of what this teaching involved.

These points must be recognised when placing the survey results in a wider theoretical context. The results can only be interpreted within the limits of the information requested by the questionnaire. Nevertheless, several useful conclusions can be made about health education practice in primary schools.

There has been a significant increase in the teaching of health education, both in relation to the breadth of topics covered and in terms of the amount of structure in the approach taken. The teachers also stated that they planned to increase their health education input again in the year following the survey. These findings indicate that health education is not only gaining more recognition in schools but also that this recognition is being translated into practice with increased attention being given to health topics. These trends are very much in line with the recommendations not only of health educationists but also of school inspectors (3.2(1)).

The teachers responding to this survey predominantly viewed health education in preventive terms, placing greatest importance on those issues clearly

related to the prevention of disease or ill-health according to a medical model (1.1(1)). The issues listed which related in particular to positive health or well-being were not generally viewed as important ('Relationships' is an example). Similarly, respondents placed greatest emphasis on those topics predominantly concerned with physical health ('General Body Knowledge', for example) while allocating lower priority to topics relating also to th mental and social facets of health ('Drugs' and 'Alcohol' for example). The overall pattern indicated by the teachers' ranking of issues, and also reflected in their teaching practice in relation to the five given health points, is one of emphasis on the prevention of ill-health rather than the promotion of positive health and of concentration on the physical rather than the mental or social facets of health.

It follows from this pattern that the issues to which teachers allocated greatest priority were those which could be addressed most successfully with an information-giving approach and without recourse to non-educational methods, affective education, the development of lifeskills, or attention to social and political issues.

There is some evidence from the survey, therefore, that teachers of Primary 6 and Primary 7 classes perceive a preventive role for health education and adopt a largely educational approach in addressing issues. Tones (1986b) has advocated a specialist role of this type for health education within the educational system, arguing that the aim of health education should be to contribute to the prevention of disease and disability and to promote appropriate utilisation of the health services. However, Tones emphasises that health education of this sort requires the support of PSE. The present study does not permit assessment of whether such support occurs in Greater Glasgow. Only if it does can the present emphasis in health education be viewed as adequate for the achievement of even the narrowest of aims for health education.

The methods and materials adopted for health education are more in line with recommendations than are the issues receiving attention and viewed as

important. McCafferty (1979) and Reid (1985) have both advocated primarily *information-based* health education for children in upper primary school classes, attention being given to psychosocial aspects and the development of skills as pupils become older. Provision of information is a necessary component of health education and one particularly suited to children of this age group.

Teachers are adopting a more structured approach to health education than they have done in the past. There is more extensive use of project work and of television series for health education. However, approach taken to health education varies in different Educational Divisions, and this is particularly apparent in relation to the adoption of a structured health scheme for health education. There is clearly, therefore, a role for Divisional Education Officers to advocate the development of schemes which plan the teaching of health issues throughout the range of primary school classes. This approach would reduce duplication of effort by teachers and would increase the likelihood of comprehensive coverage of health issues. Moreover, within these structured schemes for health education, a role could be identified for supportive PSE input at appropriate points.

Several lessons can be learned, also, from the widespread use in Greater Glasgow of the 'Jimmy on the Road to Super Health' package. Of all the available health education materials, this package is, arguably, not the most in line with recommended approaches to health education. It has, however, been 'marketed' very well in the Glasgow area; it was developed locally taking account of teachers' suggestions (Calman & Carmichael, 1981), has been shown to be effective at deterring some children from smoking (Deans, Calman & Carmichael, 1984), and has been distributed to all primary schools in the area.

Local or regional promotion of materials in these ways thus seems to have an impact on teaching practice, and reminds us that the 'best' approaches to health education will not be adopted without extensive and active 'marketing' activities.

CHAPTER 4: STUDY OF THE HEALTH-RELATED BELIEFS AND BEHAVIOUR PATTERNS OF UPPER PRIMARY SCHOOL CHILDREN IN GREATER GLASGOW

4.1 INTRODUCTION

The study presented in this chapter explores the health-related beliefs, perceptions and behaviour of schoolchildren in Primary 6 and Primary 7 classes in Greater Glasgow. Cigarette smoking behaviour is examined in particular detail, and an identification made of the factors which are associated with smoking among this population.

There are clear reasons for paying particular attention to the issue of cigarette smoking, given that it is the single largest preventable cause of morbidity and mortality in the United Kingdom (Royal College of Physicians of London, 1971). Prevention of the uptake of smoking must, therefore, be seen as a priority. The age group most at risk of experimenting with smoking is that of 10-12 year old children (Goddard & Ikin, 1987), and research has shown that the younger someone starts to smoke, the more likely he is to retain the habit into adulthood (McKennell & Thomas, 1967). For these reasons, upper primary school children are a key group for anti-smoking education.

To be effective, this education must take account of the role which smoking may play in the context of 'lifestyle' as a whole, and it must address the social as well as the individual factors which are associated with cigarette smoking. The study described in this chapter permits identification both of the factors *shown* on statistical analysis to be associated with children's smoking, and of issues *perceived* to be important by the children themselves.

In order to place cigarette smoking within a broader conceptual context, the children's perceptions of health and of smokers and nonsmokers are also explored. An understanding of these perceptions enables the design of health education initiatives which are appropriate to the conceptualisations of children, and are not simply developed from an adult's perspective.

In this study, all of these issues are explored through a self-completed questionnaire administered to the children in school. The questionnaire was designed to examine some of the factors previously shown to be of relevance, but also to address some of the gaps in the existing information base (4.2). The study results are discussed in relation to previous research findings.

4.2 BACKGROUND

Children have been recognised as a key group for health promoting interventions. As a consequence of this, and also possibly of the ready access to children as a captive study population in schools, much research has been carried out involving young people. In this section I review the previous research of relevance to the study described in this chapter. My review focusses on studies carried out in the UK, but where there is limited or inadequate British research I refer to work from other countries. There has been extensive research examining some issues but there is a lack of information on others. These gaps in knowledge provide important indicators of necessary future research.

4.2(1) Children's perceptions of health and smoking

Studies of children's health-related attitudes and behaviour usually rest on the assumption that the children participating in the study define and perceive the underlying constructs in the same way as the researchers do. There is, however, an almost complete lack of knowledge about how children really do perceive health: we know very little about what the word 'health' means to children.

Gochman has studied children's perceptions of vulnerability to health problems (Gochman & Saucier, 1982), and the salience of health (Gochman, 1972) but he did not determine how children define the word health nor what images the concept elicited.

Head (1987) explored the health beliefs of adolescents in Wiltshire in order to develop health locus of control scales. He found that pupils in the third year of secondary school had a multi-dimensional perception of health. They adopted conventional concepts such as 'being fit' and 'not having an illness', but also social concepts of health, such as 'having friends' or 'being liked by people'.

The only fully-reported study to examine *children's* views of health, however, is that of Natapoff (1978). Interviews were carried out with children from

four schools in New Jersey. Children from the first grade (mean age 6.6 years), the fourth grade (mean age 9.6 years) and the seventh grade (mean age 12.7 years) were interviewed, yielding a total sample size of 264 children. Two questions in the interview schedule investigated the children's concepts of health. These questions were: *'What does the word health mean?'* and *'How do you feel when you are healthy?'*. Responses to these questions are considered together as representing the children's concepts of health.

In the sample as a whole the most frequently mentioned categories of response, together with the proportion of children mentioning each, were:

a) 'Feeling good' (67%)

b) 'Being able to do wanted things' (61%)

c) 'Not being sick' (48%)

and d) 'Being able to eat regular foods' (44%)

Boys and girls did not differ significantly in their responses in these categories, but other statistically significant sex differences were observed for two of the categories of response. 'Cleanliness', which was mentioned by 27% of the sample as a whole, was mentioned by more girls than boys ($p < 0.05$); and having a 'strong body', which was mentioned by 23% of the sample, was mentioned more often by boys than girls ($p < 0.01$).

Age had an influence on the responses given: with increasing age there was an increase in the total number of categories mentioned as well as changes in frequency for each category. The youngest group of children (six year olds) saw health as a series of specific health practices (for example, eating a balanced diet, keeping clean, or taking exercise). They also regarded health as necessary to enable them to do things, such as play with friends or go outside. The fourth graders (nine year olds) perceived health more in terms of 'total body states', such as being in good shape or feeling good, and were concerned with the performance of daily activities which required physical fitness. The oldest group of children also saw health in terms of feeling good and being able to participate in desired activities.

They demonstrated abstract thinking (for example, in concepts of mental health) not evident in the younger groups.

In this study there was no association between the children's intelligence (as measured by IQ tests) and their responses, and there was an effect of socio-economic status only in relation to the category 'feeling good', with children from working class families choosing this response more often than did other groups.

Natapoff's work suggests that children perceive health in a very positive way. Unlike adults, they do not seem to regard health as tied up with *necessary* activities or duties, but rather see it as something which enables them to perform *desired* activities. The children's ideas of health changed with age, but were generally not related to sex, intelligence or socio-economic status.

An understanding of children's perceptions of health is an important basis not only for the interpretation of results of studies but also for the development of health education initiatives appropriate to children's concepts. In a similar way, it is important for those involved with anti-smoking initiatives to gain an understanding of children's perceptions of smokers and nonsmokers.

Bynner, in his study of secondary school boys, asked the boys to rate images of themselves and of smokers, and found that self-image and smoker-image were much closer for smokers than for nonsmokers (Bynner, 1969). Bland, Bewley and Day (1975) carried out a similar study with primary school boys. The data from their study suggest that in the early stages of taking up smoking, children do not identify themselves in the same way as they identify smokers. Among this group, the image of a smoker was of a boy who is foolish, a trouble-maker, careless, untidy and tough; whereas the image of self was of someone friendly, sensible, good at sports, good at school work, and tough. These differences were observed within each smoking category (from heavy smokers to nonsmokers), but were less marked among the smokers than the nonsmokers.

Kannas (1985) examined not only the children's images of smokers but also their images of nonsmokers. Unfortunately, children's perceptions of self were not

examined in this study. His sample was a group of 1664 Finnish secondary school children aged 11 - 16 years, but his results are similar to the findings of previous studies in the UK and throw additional light on some of the issues. In a similar way to Bynner (1969) and to Bland *et al* (1975), Kannas presented a list of adjective pairs and assessed the respondents' images according to the method of semantic differential. Smokers were described more negatively than nonsmokers on most traits, with smokers being perceived as nervous, weak, proud, unfriendly, untidy and stupid. Smokers were also, however, seen to have leadership qualities. Nonsmokers described smokers as having distinctly more negative traits than did smokers themselves, whereas those who smoked still assigned a positive image to nonsmokers. The concepts of boys and girls did not differ greatly, nor was there an effect of socio-economic background. With increasing age of the respondent, however, the image of the smoker became more positive, and that of the nonsmoker more negative.

The results of Kannas' study indicate that images of smokers and nonsmokers are developmental in nature and interventions should take account of the perceptions of children in different age groups. However, throughout the age range studied here, smokers were consistently seen in a more negative light than were nonsmokers although they were rather more attractive in the eyes of other smokers than they were to nonsmokers.

Whilst these studies have all shown that smokers rate the smoking image more highly than do nonsmokers, none of them enables us to assess whether this more positive perception is a risk factor for the uptake of smoking or whether the favourable image develops after the children start smoking cigarettes. Another limitation is that no study has looked simultaneously at images of self, smoker and nonsmoker.

4.2(2) The prevalence of cigarette smoking in school children

Gillies (1986) has presented an comprehensive review of studies which have examined the prevalence of smoking in schoolchildren in the United Kingdom since 1957. There is no value in my presenting a similar review here and so I shall simply make some general points in relation to the situation in Scotland, and specifically in the Glasgow area.

Extensive variations exist in the estimated levels of smoking in different regions of the country. Ledwith (1981) found that among children in Lothian in 1981, 7% of both boys and girls age 10-11, and 7% boys and 5% girls age 11-12, were regular smokers. In contrast, the Brigantia survey carried out in the North of England in 1982 found only 3% of boys and 2% of girls age 11-12 to be regular smokers (Charlton, 1984); and in the Avon prevalence study (Nelson *et al*, 1985) only 3% of children aged 11-12 were smokers. Recent surveys on Scotland have reported lower levels of smoking among children within this age group. The Scottish component of the WHO cross-sectional survey of European school children's health-related behaviour (Currie, McQueen & Tyrrell, 1987) found that only about 0.1% of boys and 0.05% of girls aged 11 in Lothian in 1986-7 were smoking on a regular basis. Children in Primary 7 and Primary 6 classes in schools within the Ayrshire and Arran Health Board's catchment area in 1988 were smoking at a slightly higher level. The percentages of children smoking regularly were 'Primary 6 males less than 2% and females less than 1%' and 'Primary 7 males and females under 4%' (Thomson, McQueen & Currie, 1988, p.14). In all of these studies, smokers were defined as those smoking one or more cigarettes per week.

There are also, of course, problems of comparability caused by differences in the methods of data collection employed in the various studies. However, even the national surveys carried out every 2 years for the OPCS, and using the same approach each occasion, have observed higher levels in Scotland. Dobbs and Marsh (1985) reported that 5% of boys and 2% of girls aged 12-13 in Scotland were regular smokers, compared with figures of 3% and 2% respectively in England and Wales.

Goddard and Ikin (1987) found that the levels in Scotland had fallen to 2% for boys and 1% for girls. The corresponding figures for England and Wales were 2% and 2% respectively.

The national surveys have indicated a downward trend in the prevalence of smoking among both boys and girls in secondary schools, and this trend is supported by the results of local studies. Looking at secondary school children as a single group, the prevalence in Scotland is still higher than that in England and Wales (Goddard & Ikin, 1987), but among the youngest children the prevalence rates in Scotland are slightly lower than in the rest of the country.

The picture locally in Glasgow was investigated in the Glasgow 2000 primary school smoking survey (baseline study) carried out in 1984. A self-completed questionnaire was administered to all children in Primary 7 classes in a sample of 60 primary schools located throughout the city. 2067 children participated in the study (Glasgow 2000, 1985)

Overall, 57% of the children (54% boys and 59% girls) had never smoked a cigarette; and 7% (9% boys and 4% girls) were regular smokers, smoking at least one cigarette per week. The prevalence of smoking was therefore considerably higher than the levels observed both in other recent local studies, and in the national surveys. There was also a high degree of regularity in the children's smoking behaviour. Nearly 80% of the smokers had smoked in the past week, and 42% had smoked at least one cigarette since the previous day. The factor most strongly correlated with the children's smoking was the smoking behaviour of their siblings. Those with an older brother or sister who smoked were significantly more likely to be smokers themselves. There was no association with parents' smoking.

There were some differences held by smokers and nonsmokers in the attitudes towards smoking. Children who smoked saw more immediate benefits from smoking than did nonsmokers - they were significantly more likely to agree that 'smoking calms your nerves' than were nonsmokers, and girls who smoked were also more likely to agree that 'smoking makes you feel grown-up', and that 'smoking

makes you look tough'. However, smokers *and* nonsmokers generally agreed that 'people of my age smoke to show off', 'smoking makes you smelly', and 'smoking is a waste of money'; and disagreed that 'smoking keeps your weight down', 'smoking gives you confidence' and 'smoking is fun'. There were no differences either in smokers' and nonsmokers' awareness of the health implications of smoking.

The results of this Glasgow 2000 baseline study are an important data set with which to compare the results of my study, as they refer to the same study population and use identical methods of data collection. As discussed in the next section, the factors found to be associated with children's smoking in Glasgow have also been identified by other studies in the UK.

4.2(3) Factors associated with cigarette smoking in British schoolchildren

Many studies have identified factors which are associated with cigarette smoking among children and adolescents. This review is limited to investigations carried out in the United Kingdom, covering children in secondary schools as well as in upper primary school classes

Most of the studies described were cross-sectional in nature. While such surveys provide useful evidence of association, a longitudinal study design is preferable for the examination of cause-effect relationships, not least in ensuring that factors of potential relevance precede the behaviour under investigation. Much emphasis in this account, therefore, is placed on three prospective studies (Banks, Bewley & Bland, 1981; McNeill *et al*, 1988; Murray *et al*, 1983b).

The studies reported also vary in other important ways.

Firstly, there is variation in the methods used for data collection. McKennell (1980) has demonstrated that children's self-reports are highly dependent on the method by which the data are obtained (see 4.2(4)). He has recommended that data be collected by self-completion questionnaires administered to children in classes in school. Most of the studies described here have used this method,

although some - notably the national surveys carried out for the OPCS (Dobbs & Marsh, 1983; Goddard & Ikin, 1987) - have selected samples of children out of classes to take part in the study.

Secondly, different criteria are employed in the definition of 'smokers' and 'nonsmokers' in the various studies, and different questions are asked to establish the children's smoking status. The most widely accepted criterion for defining a child as a smoker is that (s)he smokes at least one cigarette a week. The more recent studies of primary school children have generally adopted this criterion for defining smokers, and have used a standard question for assessing smoking behaviour (see section 4.2(4)). However, studies involving pupils in secondary schools have often employed higher levels of smoking as their criterion for establishing smoking status - for example, Nelson *et al* (1985) defined regular smokers as those smoking more than six cigarettes a week. It follows from this lack of standardisation in definition that some factors found to be associated with cigarette smoking in one study may not be associated with smoking in another study which adopts a different classification to define smokers.

A third problem arises as a result of the different methods employed to analyse the data. In most studies no attempt has been made to control for possible confounding effects from other variables. Therefore, it is not possible from these studies to assess whether a particular factor has an independent association with smoking behaviour or whether it is associated only because of its relationship with other factor(s) which influence cigarette smoking behaviour. There are a few studies, however, in which multivariate methods for analysis have been employed (Ledwith & Osman, 1984; McNeill *et al*, 1988; Murray *et al*, 1983b). These studies throw additional light on the issues and so particular emphasis will be placed on them in the discussion. Their multivariate approaches to analysing the data paint a rather different picture to that produced by the more usual univariate approaches.

The final important consideration concerns the validity of children's reports of their own behaviour and that of significant other people. This issue is discussed

in detail in section 4.2(4). It is sufficient her to say that children's self-reports have been shown to be valid when the standard methods of data collection, as described above, are used. There is less evidence concerning the validity of their reports of the behaviour of their family and friends, and their perceptions of these people's attitudes. Murray *et al* (1985) found fairly good agreement between the prevalence of parental smoking reported by parents themselves and that reported by their children, although the children did give a slightly (though not significantly) higher prevalence. An additional issue is whether children's reports of the behaviour and attitudes of others are affected by having to report upon their own behaviour and attitudes too. The only means of investigating this would involve the administration of a questionnaire in which no details of the child's own smoking behaviour were sought followed by a second, linked questionnaire which did collect data on the child's own smoking. No such study has been carried out, so we are working on the assumption that the children's reports of others' attitudes and behaviour are valid.

Being alerted to the problems of comparing the results of various studies, we are now in a position to examine the factors which have been shown to be associated with cigarette smoking in children. These factors will be discussed under the following headings:

(a) Individual factors (attitudes, knowledge, intention to smoke, self-esteem).

(b) Social factors (family, friends, social class).

(c) School factors (academic achievement, characteristics of schools).

The discussion is not exhaustive. In particular, it does not cover aspects of personality (such as nervousness, rebelliousness and irresponsibility) which have been proposed as risk factors for smoking, not does it cover some of the behavioural correlates of smoking. My purpose is to concentrate on the issues central to my research project and those most pertinent to anti-smoking interventions.

(a) Individual factors

Attitudes:

A wide range of attitudes have been found to be associated with smoking among children. Those for which there is most evidence include:

(a) 'smoking calms your nerves' (Boyle, 1968; Cartwright & Thomson, 1960; Charlton, 1984; Dobbs & Marsh, 1985; McGuffin, 1982; Thomson *et al*, 1988)

(b) 'smoking gives you confidence' (Charlton, 1984; Dobbs & Marsh, 1985)

(c) 'smoking keeps your weight down' (Charlton, 1984; Dobbs & Marsh, 1985)

(d) 'smoking makes you look tough' (Bynner, 1970)

(e) 'smoking is fun/enjoyable' (Banks, Bewley & Bland, 1981; Charlton, 1984; Nelson *et al*, 1985)

(f) 'people smoke to show-off' (Bewley, Bland & Harris, 1974; Bewley & Bland, 1977)

(g) 'smoking makes you look grown-up' (Bewley *et al*, 1974)

The great majority of children, regardless of their own smoking status, are of the opinion that smoking is bad for health. Nevertheless, studies have shown that children who smoke are less likely to believe smoking to be harmful or bad for health than are nonsmokers (Bewley *et al*, 1974; Cartwright & Thomson, 1960; Eiser & Van der Plight, 1984). The study of Bewley *et al* (1974) refers to children of 10-11½ years old in Derbyshire, and found in this school population that only 69% of the smokers (smoking at least one cigarette per week) were of the opinion that smoking is bad for health compared with 88% of the nonsmokers.

Other studies have combined individual attitudes into broader groupings. For example, Murray *et al* (1983b) defined children as holding positive attitudes towards smoking if they agreed with one or more of the following - 'smoking can help people when they feel nervous or embarrassed', 'smoking is very enjoyable',

'there is nothing wrong with smoking'. Children thus defined as holding favourable attitudes. Similarly, those holding negative attitudes to smoking were about 3.8% more likely to increase their smoking behaviour over the following four years than were those who held less favourable attitudes to smoking - agreeing with one or more of the statements 'smoking is a dirty habit', 'cigarettes should be harder to get', 'children caught smoking should be punished' - were about 4.5% less likely to increase their level of cigarette smoking over the four years of the study.

Peers and Christie (1984) found smokers significantly more likely to be of the opinion that smoking leads to social benefits, and significantly less likely to think that smoking is a waste of money. Ledwith and Osman (1984) also reported smokers to be more likely to agree that smoking has personal benefits, but in this study smokers were also found to be more ready to acknowledge some disadvantages of smoking (that it costs money and can be addictive) than were nonsmokers.

Knowledge:

Two types of knowledge may be identified. The first can be called 'official' knowledge, and refers to scientifically-confirmed or academically-respected knowledge. The second is 'experiential', and is a personal, unverified awareness of the 'facts'. Both types of knowledge are important and may influence behaviour, although health education has tended to focus only on 'official' knowledge. This bias is also present in studies assessing children's knowledge in relation to their smoking behaviour.

Some studies have shown that nonsmokers are more aware of the health hazards of smoking than are smokers (Bewley & Bland, 1977; Bynner, 1970; Cartwright & Thomson, 1960); whereas others have found no difference in awareness between the two groups (Charlton, 1984; Peers & Christie, 1984; Rawbone & Guz, 1982).

In the MRC/Derbyshire smoking study (Murray *et al*, 1983b), those whose smoking increased over the four years of the study were significantly more likely to

not have believed in the health hazards of smoking, as measured by agreement with one or more of the following statements: 'smoking is dangerous only to old people', 'smoking is only bad for you if you smoke a lot', 'smoking is only bad for you if you have been smoking for many years'.

Intention to smoke:

Several studies have shown a significant association between smoking and an intention to smoke in the future. Cartwright and Thomson (1960) found that children who smoked were more likely than were nonsmokers to intend to be smokers when they left school for good. Bewley, Bland and Harris (1974), whose figures relate only to boys on account of the small number of girls in their sample who smoked cigarettes, have reported that 45% of heavy smokers (smoking one or more cigarettes per day), 40% of light smokers (less than one cigarette per day) and only 3% of nonsmokers in their sample said that they intended to smoke in the future ($x^2 = 38.4$; $p < 0.001$).

Data from the national OPCS studies also indicates an association between smoking and intention to smoke in the future (Dobbs & Marsh, 1983; Goddard & Ikin, 1987). Goddard and Ikin (1987) found that only 1% of the pupils in Scotland who had never smoked thought that they would become regular smokers after leaving school, compared with 65% of those currently smoking at least one cigarette per week.

Intention to smoke has also been shown to be associated with *uptake* of smoking. In the prospective study carried out in the Bristol area, and reported by McNeill *et al* (1988), those in first and second year classes in secondary schools who thought that they would definitely smoke in the future or were uncertain about future smoking were more likely to take up smoking within the following thirty months than were those who could not see themselves smoking in the future. This association was significant in both univariate and multivariate analysis.

Self-esteem:

Much emphasis has recently been placed on the concept of *self-esteem*, and its association with health-related behaviour (1.4(4)). Children with a low self-esteem are postulated to be more conforming and thus more likely to succumb to pressure (from peers or others) to smoke. Recent studies have questioned this association. Dielman *et al* (1984) found that children who had higher scores on self-esteem tended to practice fewer negative health-related behaviours and expressed less intention to do so in future. The most salient dimensions of self-esteem in relation to smoking were 'happiness' and 'self-confidence'. Despite finding consistent associations between healthful behaviour and a high self-esteem, these authors concluded that the results were not strong enough to recommend that programmes aimed at the prevention of smoking should focus on the enhancement of self-esteem.

Regis and Balding (1988) have found a rather more complex relationship between self-esteem and children's smoking behaviour. Heavy smokers, especially those not wanting to give up smoking, were not always the subjects most lacking in self-esteem, those with the lowest self-esteem were in fact light smokers. These authors postulated that children with low self-esteem may turn to smoking to compensate, and that their self-esteem then improves as they become heavier smokers. Their self-concept changes alongside their smoking behaviour.

(b) Social factors associated with smoking

Family:

Many studies have found *parental smoking behaviour* to be associated with children's smoking. In some cases a link has only been found between children and parents of the same sex (Bewley & Bland, 1977; Bewley *et al* 1974; Murray & McReynolds, 1987), but in most the association has not been sex-related (Cartwright & Thomson, 1960; Dobbs & Marsh, 1985; Murray *et al*, 1983a, 1983b; Nelson *et al*, 1985). In contrast, two of the studies employing multivariate methods of

analysis (Ledwith & Osman, 1984; McNeill *et al*, 1988) found no association between children's smoking and parental smoking behaviour.

There are some indications that *parents' attitudes* towards smoking are more strongly associated with children's smoking than is their behavioural example (Charlton, 1984). Children who smoke have frequently been shown to perceive their parents as more permissive of smoking than do nonsmokers (Bynner, 1970; Dobbs & Marsh, 1985; Ledwith & Osman, 1984; Murray & McReynolds, 1987; Nelson *et al*, 1985). McNeill *et al* (1988) found this association in their univariate but not their multivariate analysis. The influence of parental attitudes may be stronger for boys than girls (Banks, Bewley & Bland, 1981). There may also be a complex social class effect. In the longitudinal MRC/Derbyshire Smoking Study, parental attitudes to children smoking did not affect the children's smoking practices in the short term (Murray *et al*, 1983a). However, where parents from manual households were permissive, boys were less likely to adopt smoking rapidly, and girls whose fathers also smoked were less likely to be regular smokers four years later (Murray *et al*, 1983b).

The other important factor in the home which has been shown to be associated with children's smoking is the *behaviour of siblings*. As was the case for parental smoking behaviour, some studies have found this association to occur only with siblings of the same sex (Bewley & Bland, 1977; Bewley *et al*, 1974). Other studies found an association irrespective of the sex of the sibling who smoked (Charlton, 1984; Dobbs & Marsh, 1985; McNeill *et al*, 1988; Murray *et al* 1983a, 1983b). There have also been studies showing differential effects according to the sex of the subject. For example, Murray and McReynolds (1987) found that whereas girls were more likely to smoke if they had either a brother or a sister who smoked, boys' smoking correlated with their brothers' only.

Friends:

Children who smoke are significantly more likely to report having *friends*, and in particular 'best friends', *who smoke* (Bewley & Bland, 1977; Bewley *et al*, 1974; Ledwith & Osman, 1984; Murray & McReynolds, 1987). These studies cannot determine whether having friends who smoke cigarettes is a risk factor for the uptake of smoking, or whether children who smoke adopt other children who smoke as friends.

There is evidence, however, that friends play a very important role in the development of children's smoking experience. In the most recent national study carried out for the OPCS (Goddard & Ikin, 1987), over half of the pupils in the Scottish sample who had tried smoking had been given their first cigarette by a friend, and almost three in four pupils who had ever smoked were with friends when they tried their first cigarette.

Friends may also have an influence through the expression or demonstration of favourable *attitudes* towards smoking. McNeill *et al* (1988) found that children's uptake of smoking was related to the belief that friends would mind 'only a little' or 'not at all' if they smoked. This association was observed in both univariate and multivariate analysis. Cross-sectional studies also have shown children's smoking to be associated with the belief that friends would not mind (Murray & McReynolds, 1987; Nelson *et al*, 1985).

The influence of friends had also been examined in terms of peer pressure to smoke. Smokers have been found to acknowledge the influence of friends upon other individuals' smoking, and boy smokers to agree that they were influenced by friends (Banks *et al*, 1981). Ledwith and Osman (1984) also found that smokers reported more peer pressure to smoke than did nonsmokers. Short-term evaluation of the MRC/Derbyshire Smoking Study found an association between peer pressure and both smoking and the uptake of smoking (Murray *et al*, 1983b). However, in the long-term follow-up, after four years, peer pressure to smoke when young

emerged as a significant risk factor only for boys from manual household (Murray *et al*, 1983a).

Other studies have found no evidence of an effect of peer pressure. Eiser and Van der Plight (1984) found more concern reported about the disapproval of parents and teachers than of friends in their sample of 15 - 16 year olds in London. Their results indicate that the friendship group acts as a support group for smoking rather than a coercive group pressing for adoption of the behaviour. They suggest that the placing of emphasis on peer group pressure is a case of adults 'passing the buck', and understating their own role and influence.

Whilst Eiser and Van der Plight's argument is an important one, balance of evidence indicates that friends do play a very important role both in the initiation of smoking, by encouraging and facilitating the initial act of trying a cigarette, and in the period of transition from experimenting with smoking to becoming a smoker.

Social class:

There is no clear relationship between children's smoking behaviour and their social class. No association was found in the studies reported by Bynner (1969), Bewley and Bland (1977), or Aitken (1980). Others have, however, observed complex associations. McNeill *et al* (1988) found that children in manual socio-economic groups and those whose mothers went out to work were significantly more likely to take up smoking. However, these associations were present only on univariate analysis. Murray *et al* (1983a, 1983b) also found that children from manual households were more likely to take up smoking; and Taylor and Mardle (1986) observed greater levels of smoking among children in lower socio-economic groups.

There is insufficient evidence from these studies to indicate whether an association with social class truly does exist. Where it appears, this may result from confounding with other variables such as lack of opportunity to participate in sporting activities (Murray *et al*, 1983b).

Other:

Other social factors which have been associated with cigarette smoking among children include:

(a) having a boy/girlfriend (McNeill *et al*, 1988; Murray *et al*, 1983a).

(b) participation in social activities (Murray *et al*, 1983a, 1983b)

(c) having 'a more adult lifestyle' (Ledwith & Osman, 1984)

(d) having more money to spend (McNeill *et al*, 1988)

(f) lack of participation in sporting activities (Currie *et al*, 1987; Murray *et al*, 1983b).

There seems to be a general pattern, therefore, that factors associated with a grown-up lifestyle, are associated with cigarette smoking among children.

(c) School factors associated with smoking

Academic achievement:

Several studies have noted an inverse relationship between smoking and academic achievement (Boyle, 1968; Bynner, 1969; Bewley & Bland, 1977; McNeill *et al*, 1988). Bewley and Bland, (1977) found that children aged 10-12½ years who did not smoke were academically more able than those who did, and this was the case when academic achievement was assessed by the children as well as by head teachers.

Given this association of smoking with low academic achievement, it is not surprising that smokers are less likely than nonsmokers to identify with the aims of the school (Bynner, 1969). Banks *et al*, (1981) have shown that smokers are more likely to hold anti-school values; and Murray *et al* (1983b) found that smokers were more dissatisfied with school than were nonsmokers. In the latter study, those children most dissatisfied with school life had a greater involvement in various social activities and, as shown above, such participation in an active social life is also a factor found to be associated with smoking. In the longer-term evaluation of

the MRC/Derbyshire study (Murray *et al*, 1983a) no association was found with attitude to school. However, both the uptake of smoking and an increase in the 'heaviness' of smoking were associated with participation in social activities. This implies that negative attitudes to school may be a significant factor mainly on account of their association with an active social life.

Characteristics of schools:

Murray *et al* (1984a) found that after allowing for the smoking practices of family members the prevalence of smoking among adolescents in a random sample of Derbyshire schools differed greatly from school to school. Those which had a *school uniform* and a *compulsory anti-smoking programme* had lower smoking rates than schools which did not. The respective proportions of smokers were 23% and 25% for boys, and 28% and 33% for girls, aged 15 - 16 years. In Northern Ireland, on the other hand, there was found to be no difference in the prevalence of smoking in those primary schools which did not teach anti-smoking education compared with those which did, and no relationship with school type or location (Murray & McReynolds, 1987).

The Derbyshire study (Murray *et al*, 1984a) also showed that more boys aged 15-16 years smoked in schools where *head teachers smoked* and more girls aged 15-16 years smoked in schools where female assistant head teachers smoked. As in the case of parental and sibling smoking there may, therefore, be some same-sex relationship between teachers smoking and smoking in schoolchildren.

The findings from the longitudinal study in Bristol (McNeill *et al*, 1988) oppose this idea of the teacher as a role model for smoking. In the multivariate logistic regression analysis, children who gave smaller estimates of the number of teachers who smoked were more likely to take up smoking. This suggests that teachers may, in fact, be counter role models - which would certainly be concordant with the findings that smokers are more likely to show dissatisfaction with school and hold anti-school values.

Pupils' perceptions of their *teachers' attitudes* towards smoking have also been shown to be associated with their own smoking behaviour (Charlton, 1984; McNeill *et al*, 1988). Murray and McReynolds (1987) observed a correlation with teachers' attitudes only for girls. Those girls who thought their teachers would like, or would not mind, them smoking were significantly more likely to smoke than were those who thought that their teachers would mind.

4.2(4) Methodological issues

Children's reports of their own smoking behaviour have been shown to vary according to the data collection method employed. McKennell (1980) studied the sources of bias in a sample of over 4000 children aged 11-16 years in British secondary schools. For boys, the reported incidence of smoking increased when the questionnaire was self-administered rather than completed by an interviewer, when the answers were obtained in school rather than at home, and when children completed the questionnaires in whole classes rather than individually. These effects did not reach statistical significance for girls and were more pronounced for younger boys. Emphasis on the confidentiality of the interview produced a decrease, rather than an increase, in reported levels of smoking.

The results of McKennell's work have important implications for studies of children's smoking, and the use of self-completed questionnaires administered to complete classes in schools has become the standard accepted method of data collection.

Whilst the adoption of this recommended method of data collection may reduce possible bias in response, there are several other issues relating to the accuracy of the data collected which require considerations - in particular, the *reliability* and *validity* of response.

Reliability refers to whether the method produces results which are consistent and reproducible. The reliability of response may be assessed by

repeating a measurement, or by examining consistency of responses over several related or interdependent questions.

Validity refers to whether a test actually measures what it is supposed to measure. In studies of schoolchildren and smoking the crucial question is whether children validly report their own attitudes and behaviour and those of other people. It is easy to imagine that children might exaggerate their level of smoking and over-report, to 'impress' their classmates, or the researchers. On the other hand, they might under-report, to disguise their participation in 'socially unacceptable' behaviour, and give a common 'safe' response. The immediate causes of such over- or under-reporting are minimised by the adoption of the recommended methods of data collection (McKennell, 1980). There may, however, always be a background influence on reporting which is caused by prevailing social attitudes and norms. For example, Goddard and Ikin (1987) observed a general downturn in the prevalence of smoking among schoolchildren in Scotland, but they have questioned whether this is a real trend or simply a reflection of changing attitudes. If smoking is seen as less socially acceptable now than it was in previous years, children may be more reluctant to admit to smoking.

Consistency of response suggests, but does not ensure, that a questionnaire actually measures what it purports to measure. The validity of findings can be established if a close correlation is found between the outcome from the questionnaire and some other measurement. Some previous research (Gillies, 1986) has examined the validity of children's self-reports by comparing them with objective measurements of smoking behaviour. Clearly, the objective test must itself be a valid measure of smoking behaviour if it is to be used to validate self-reports. Although there are several physiological tests for measuring cigarette smoking behaviour, the most appropriate test for the validation of *children's* self-reports of smoking behaviour is saliva thiocyanate estimation, because it is non-invasive, has a long half-life, requires straightforward biochemical analysis, and is inexpensive (Gillies, 1986). Studies in the UK have, however, found this method to

be insufficiently sensitive to distinguish between smokers and nonsmokers (Gillies *et al*, 1982; Williams & Gillies, 1984).

Moreover, in one recent study (McNeill *et al*, 1988), saliva samples were taken from a subsample of respondents to assess the validity of self-reported smoking behaviour against saliva cotinine levels. A very high level of agreement was found between the self-reports and the cotinine concentrations measured by gas chromatography. In only one case did a child who reported never-smoking, or having tried only once or twice, have a cotinine concentration above the nonsmoker/smoker optimal cut-off point.

Given the lack of a suitable and sufficiently sensitive objective test, and the evidence that where a test was employed it indicated self-reports to be valid, it seems to be not only acceptable but also preferable to use self-reported behaviour as the measure of children's cigarette smoking.

4.2(5) Summary

There is a large amount of data relating to schoolchildren and cigarette smoking. The usefulness of this data for facilities on understanding of children's beliefs, attitudes and behaviour is restricted by gaps in the research and by methodological limitations of studies. In particular, there is only very limited information about children's concepts of health, and their perceptions of smokers and nonsmokers. This prevents us from being able to place some of the consistent, well-researched findings in any broader context. It also inhibits the development of health-promoting initiatives which are based upon the children's own perceptions rather than those of adults.

Many factors have consistently been found to be associated with cigarette smoking among children. However, only these variables included in a questionnaire can be found to be associated with smoking. These factors to an extent, therefore, simply reflect those variables which researchers *expect* to be associated with

children's smoking whilst the closed-question approach enables the identification of associations about which children may be unaware, or keen to deny, it also prevents the identification of associations about which researchers may be unaware. There is value, therefore, in asking open-ended questions rather than restricting the children's responses to a number of given categories.

From previous research, some important recommendations for methodology in studies of schoolchildren and smoking have been made. In particular, a standard approach to data collection has been recommended (McKennell, 1980), and standardised wording of some central questions suggested (Gillies, 1985). There is also some evidence that children's self-reports are valid measures of their cigarette smoking behaviour (Gillies, 1986; McNeill *et al*, 1988), so there is no need for additional objective measurements to be taken.

4.3 AIMS AND OBJECTIVES

The study described in this chapter is relevant to the second research focus of the project: to describe the pattern of health related beliefs, attitudes and behaviour among a cohort of young people in the Glasgow area. The overall aims of the survey were threefold, and correspond with project objectives B1, B2 and B3 (p 75).

My principal aim was to develop a data set relating to the health concepts and perceptions of young people; and to their health-related beliefs, attitudes and behaviour patterns, in particular those relating to cigarette smoking.

Subsidiary aims were to utilise unprompted responses in conjunction with responses to closed questions, in the development of this data set, and to identify socio-demographic influences on the variables in the data set.

The specific objectives of the study were:

1) To describe the health-related perceptions of children in Primary 6 classes with respect to:
   - (a) the *effects* of various activities on health
   - (b) what it *means* to be healthy
   - (c) various personal *influences* on these perceptions
   - (d) perceptions of their *own* state of health.

2) To examine the problem of cigarette smoking with respect to:
   - (a) the children's *attitudes* to smoking
   - (b) their *knowledge* of the health effects
   - (c) their own past and present cigarette smoking *behaviour*
   - (d) their *intentions* concerning smoking in the future
   - (e) the *reasons* given for these intentions

(f) their *perceptions* of smokers and nonsmokers

(g) responses to open questions asking for *explanations of different categories of smoking behaviour* exhibited by children of their age and sex.

3) To examine smoking behaviour within the context of other health-related behaviours such as use of spare time, consumption of alcohol and participation in sport.

4) To identify factors associated with the uptake of smoking behaviour

5) To discuss changes occurring in all of these beliefs, attitudes and behaviour patterns between Primary 6 and Primary 7.

4.4 METHODS

4.4(1) Study population and sampling methods

The study population comprised all schoolchildren residing within the Greater Glasgow Health Board (GGHB) catchment area, and the sampling frame used was the list of all the state primary schools located within this area. The sampling unit for the study was, therefore, the primary school rather than the family, or the child himself.

Making contact through schools is an ideal means of gaining access to young people, since it is compulsory that they attend school, and the cooperation of the school unit in a study yields direct access to groups of children residing within the school's locality. For primary schools the catchment area for school recruitment is small and specific, and although recently it has become possible to request placement in schools outwith one's area of residence, this option is rarely taken up. It thus seems that if a primary school is located within the GGHB catchment area it is fair to assume that the pupils will reside within this area.

The method used to select the study sample was *stratified random sampling*. All the schools on the sampling frame were ranked according to the deprivation score (3.5(3)) associated with their postal district. The ordered list of schools was then divided into five strata of equal size, and a simple random sample of eight schools drawn from within each stratum. (The reasons for selecting a sample of this size are described in section 4.4(7) in relation to the power of the study.) The stratified random sampling method reduces the chance of large disparities between the sample and the study population in relation to the variable(s) upon which the stratification is based (level of deprivation, in this case); and, like all random sampling methods, allows inference to be made about the study population from the sample results.

Of the 40 schools in the sample, 31 were located within the Glasgow Division and 9 within the Dunbarton Division of the Strathclyde Regional Education Department. The relevant Divisional Educational Officers again kindly granted permission to carry out the study in all of the schools in the sample.

4.4(2) Data collection

The head teachers of the schools in the sample were contacted directly, by a letter requesting their permission to carry out a questionnaire study over two years with pupils currently in Primary 6 classes. The letter was sent from the department of Community Medicine at Glasgow University, and emphasised the support given to the study from the Scottish Health Education Group and also from the Department of Education in Strathclyde. A copy of the questionnaire (Appendix 2.1) was sent to the headteachers at this time to make them aware of the type and content of questions to be asked.

No within-school sampling was carried out. Rather, the questionnaire was administered to all the children in Primary 6-stage classes who were present in school on the day of the study. Similarly, all those present in Primary 7-stage classes a year later completed the questionnaire.

The questionnaires were administered, according to a standardised procedure, either by myself or by an associate researcher. We both followed a prescribed formula and a set pattern of words whilst administering the questionnaire. We were both present for the data collection process in schools having more than ten pupils within the relevant stage. This meant that the one who was not administering the questionnaires was available to answer questions and assist any child who was having difficulty with the mechanics of completing the questionnaire. In small classes with fewer then ten pupils, one researcher was able to perform both these tasks.

The children completed the questionnaires either within their classrooms or in a school hall, according to which provided the most space and privacy for them. The class teachers were not encouraged to remain with their class, as it was felt that

their presence might affect the responses given by the children. However, in 12 instances the teacher did choose to stay during the data collection process.

After completing the questionnaires, the children placed them in blank envelopes which they then sealed. In this way they were assured of the confidentiality of their responses.

4.4(3) Timetable

It is important when gathering data from a particular year-group that all responses are collected within as short a period of time as possible. Thereby, the effect of chronological age on reported beliefs, attitudes and behaviour is not confounded by the temporal influence of the stage reached within the school year.

One means of achieving this is to distribute the questionnaires to all the sampled schools and organise the class teachers to administer them on an appointed date. The big disadvantage of this method is the difficulty of making sure that the questionnaires are administered according to a set or standard procedure. The alternative approach, as adopted in this study, is to administer the questionnaire oneself, and thereby ensure standardisation of the administration procedure. Obviously with this method the data collection process has to be carried out over a longer period of time.

Piloting of study the questionnaire (4.4(5)) took place on 6th March, 1987 and subsequent amendments were made to the questionnaire content and structure (4.4(6)). The initial contact letter asking schools to participate in the study proper was posted on 17th March. A response was received from all 40 schools by the end of April. (Those schools not replying to the letter were contacted by telephone). Dates were subsequently arranged for the data collection process in schools and the questionnaires were administered in all the schools between March 30 and May 8, 1987. This timetable was mirrored (without the piloting phase) in 1988 for the repeat survey with the children now in Primary 7-stage classes. In this case all the data was collected between April 18 and May 10.

4.4(4) Questionnaire design

The questionnaire used for this study is presented in Appendix 2.1. Several of the questions within it were derived from previous studies of the health-related behaviour of schoolchildren. In particular, a core set of questions relating to cigarette smoking was included. These questions have been developed into a standard format to enable national and regional comparisons to be made from studies of schoolchildren and smoking (Gillies, 1985). They refer to the following issues:

- Parental smoking behaviour
- Siblings' smoking behaviour
- Attitudes of parents and teachers to cigarette smoking
- Respondent's own smoking behaviour; number of cigarettes smoked; and age of first smoking experience.
- Knowledge of the health effects of smoking
- Attitudes to cigarette smoking

For exact comparability, these questions should be presented in an identical order and format in each study being compared. Several studies have managed to achieve this exact replication - for example, the Brigantia survey (Charlton, 1984), the Glasgow 2000 baseline survey (Glasgow 2000, 1985), and a survey of smoking and schoolchildren in Nottingham (Gillies, 1986) have all used these core questions in an identical manner. The aims and objectives of my study, however, extended beyond the limited and well-researched issues examined by these questions, and my questionnaire therefore explored many other areas. These additional questions in my questionnaire may have influenced the children's responses to the core set. Comparisons made with previous studies inevitably assume that no such influence has taken place. I have no means of assessing the validity of this assumption.

Some other questions in my questionnaire, also, were derived from research instruments used in previous studies. The questionnaires employed in Nottingham

as part of the WHO cross-national survey of the lifestyle of schoolchildren included several questions which I used or adapted for my study. Where adaptions were made they were expansions to the questions or alterations in wording rather than changes in their structure. The questions in my study which were derived in this way from the WHO survey are:

Question 6	-	use of spare time
Questions 5 & 19	-	perceptions of self, and of smokers
Questions 28 & 29	-	consumption of alcohol
Question 30	-	regularity of meals
Question 35	-	regularity of strenuous exercise

I also included a question of local interest to assess the children's awareness of the Glasgow 2000 logo, compared with their awareness of another Glasgow symbol (the 'Glasgow's Miles Better' man) and a road sign. This question had been used previously in a Glasgow 2000 survey involving Baton Twirlers, and I included it to provide some comparison data for Glasgow 2000.

The only other question that I included from a previous study was my Question 32, assessing knowledge about nutrition. This was previously used in a health questionnaire investigating the smoking and dietary behaviour of Lambeth schoolchildren (Murray *et al*, 1984b).

All of the other questions in the questionnaire were designed specially to meet the aims of my study - to investigate children's general health beliefs and perceptions, and to examine in detail issues relating to schoolchildren and cigarette smoking.

I carried out a *readability test* on the questionnaire to ensure that it was of a level appropriate to children of 10-11 years old. The readability of the questionnaire was assessed according to Fry's readability formula (Fry, 1968). Three stages are involved in the application of this formula.

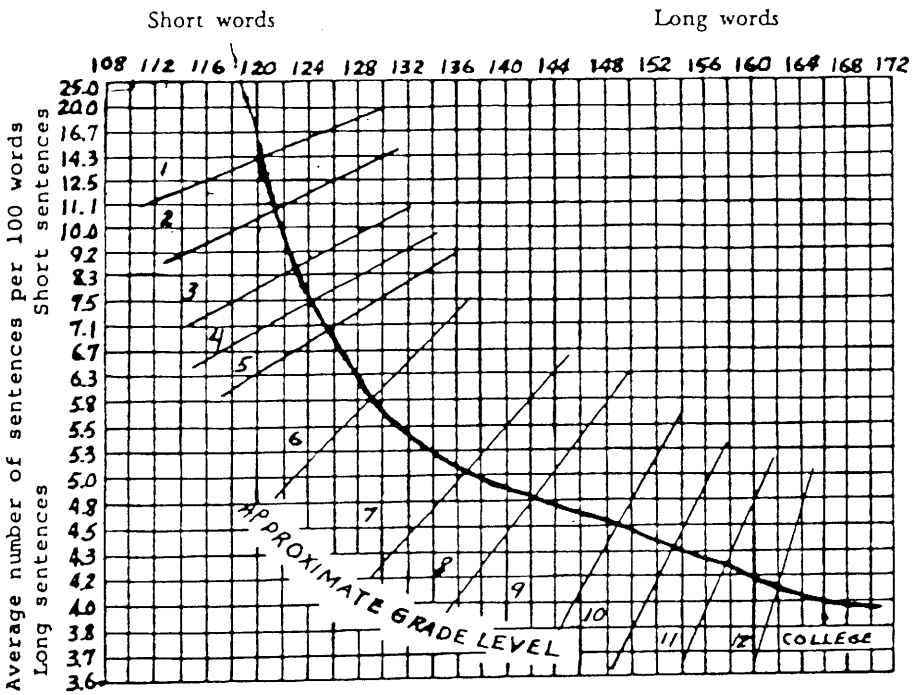
Firstly, *three 100-word passages* are randomly selected from near the beginning, the middle, and the end of the document being assessed. Secondly, a

count is made (to the nearest tenth of a sentence) of the total number of *sentences* in each 100-word passage, and the average number of sentences calculated from these three totals. Thirdly, the total number of syllables in each passage is calculated, and the average worked out from these totals. The readability level of the document can then be read off directly from the graph reproduced below.

Graph for Estimating Readability

by Edward Fry, Rutgers University Reading Center

Average number of syllables per 100 words



DIRECTIONS: Randomly select 3 one hundred word passages from a book or an article. Plot average number of syllables and average number of words per sentence on graph to determine area of readability level. Choose more passages per book if great variability is observed.

Note: The Readability Graph is not copyrighted. Anyone may reproduce it in any quantity, but the author and the editors would be pleased if this source were cited.

The three samples of 100 words taken from my questionnaire were:

a) '8' (page 5) to 'smoke' (Q11a)

b) '20' (page 9) to 'age' (Q20c)

c) '32' (page 14) to 'and' (Q32h)

Sample (a) had 12.8 sentences and 128 syllables.

Sample (b) had 4.5 sentences and 124 syllables.

Sample (c) had 9.5 sentences and 130 syllables.

The average number of syllables per 100 words was 127.3, and the average number of sentences was 8.9. Therefore the average reading age was grade 4 or 8-9 years. In other words, the questionnaire was readable by children approximately two years younger than those taking part in my survey.

The importance of testing the readability of questionnaires has been emphasised by Newman & Gillies (1984), out of an awareness that often such tests are not carried out. There is an additional problem, not usually acknowledged, however, relating to the 'mechanics' of completing questionnaires. For example, some children may have difficulty grasping the concept of multiple choice; and, even if they do understand what they are meant to do, may in practice have difficulty ticking only one box in each line. Awareness of such problems alerts the researcher to the possible need for practical assistance during the completion of questionnaires, and the undoubted requirement for clear instructions about how to answer questions.

Some final points should be made concerning the structure of my questionnaire. It was comprised of two sections. The first was a single sheet, which outlined the purpose of the study and asked for basic details such as the respondent's age and sex. It also asked for the respondent's *name* as this was required for certainty in matching the responses over the two years of the study. Thus, although the questionnaire was confidential, it was not anonymous. Two additional questions were added to this first section of the questionnaire when it was

used for the Primary 7-stage children. These questions asked the children for information about their father's and mother's occupations.

This short section of the questionnaire was completed first and then placed, for safekeeping, in the envelope provided. The main section of the questionnaire was lengthy by comparison and took the children about 45 minutes to complete. It comprised both open and closed questions and when completed it too was placed inside the child's envelope, which he then sealed.

4.4(5) Pilot study

A pilot study was carried out with pupils in two Primary 6 classes in a primary school located near the University and not included in the sample drawn for this study. Forty-four pupils took part in this pilot study.

As described in section 4.2, self-completion questionnaires have been widely used with children of this age in studies of cigarette smoking (and health-related behaviour in general). This data collection method has frequently been shown to be successful in terms of both the completeness and the validity of response. Moreover, standard questions have been devised which enable the comparison of local and national results yielded by different studies (Gillies, 1985). It was, nevertheless, still considered essential to pilot my questionnaire for the following reasons:

1 To assess the children's ability to complete open questions. The inclusion of totally open questions (without any suggested categories of response) was a unique and novel feature of my study. I could find no reports of previous work using this approach in self-completion questionnaires with pre-teenage children.

2 To assess the children's comprehension of, and ability to complete, those closed questions in my questionnaire which were not standard to studies of children and smoking.

3 To compare the quality of response from a class of children (group A) who completed the questionnaire with my supervision *but without* any additional explanations or assistance, with that from the other class of children (group B) with whom I read through the questionnaire *and* provided instructions additional to those written on it.

4.4(6) Questionnaire amendments

From the pilot study I gained insights into weaknesses of the questionnaire content, and also into the methodological and situational requirements for successful data collection. I shall examine these two issues separately.

Firstly, it should be noted that the children had very little difficulty with comprehension of the questionnaire, and completed the questionnaires enthusiastically and with few problems. The results of the pilot study were, thus, very encouraging.

There were four words in the questionnaire that were not understood by a sizeable majority of the children and were changed, as follows, for the study proper.

1. The word '*trendy*' (used in Questions 5, 19 & 27) was changed to read '*fashionable and trendy*'.
2. In Question 8, referring to cigarette advertising, the word '*brands*' was changed to '*makes or brands*'.
3. In Question 33, '*participate*' was changed to '*take part in*'.
4. Also, in Question 33, '*games period*' was described as '*P.E. period*'.

These amendments were based on explanations made to the children in group B during the pilot study, which had proved on that occasion to enable understanding of the meanings of the questions.

The only questions which were completed in an inadequate way in the pilot study were two of the questions situated on the separate sheet of paper attached to the questionnaire. This sheet introduced the study and asked the children for some basic demographic details. In response to the request for their name, many children

simply wrote their first, or Christian name. Thus this question was changed after piloting into a request for their *full* name. There was a second difficulty for many in giving the year of their birth, which was often not known. All of the children knew their age, however, so in the study proper this question about year of birth was changed to a request for the child's age.

Finally, the illustrations on the questionnaire were changed. For the pilot study the figure shown throughout the questionnaire was a boy, and this seemed to arouse some feelings of exclusion among the girls. Therefore, the illustration was changed to show both a boy and a girl. This necessitated an alteration in the wording of Question 20, so that the children's responses referred to the child of their own sex.

The amendments made to the questionnaire content as a result of the pilot study were, therefore, minor; and the overall impression I received from the pilot study was of how successfully the children completed the questionnaire which I thought to be quite long in length, time-consuming and taxing. However, the pilot study also clearly illustrated ways in which the completeness and accuracy of response could be boosted through paying attention to the *method* of data collection.

The most important finding was the much greater success of the group B situation in which I read the questionnaire aloud and added verbal instructions to those written on it. With this 'participant researcher' approach the children were much clearer about what they should be doing and received fixed standard responses to the questions which were frequently asked. This method had the added advantage that the children progressed through and completed the questionnaire at the same time, and so the problems of distraction and boredom amongst those who finished first were minimised. In other words, not only was the quality of response better with this method but also the process of data collection was much less problematic.

Because of the novelty of the survey and the naturally inquisitive nature of children, where pupils were seated in close proximity to each other there was

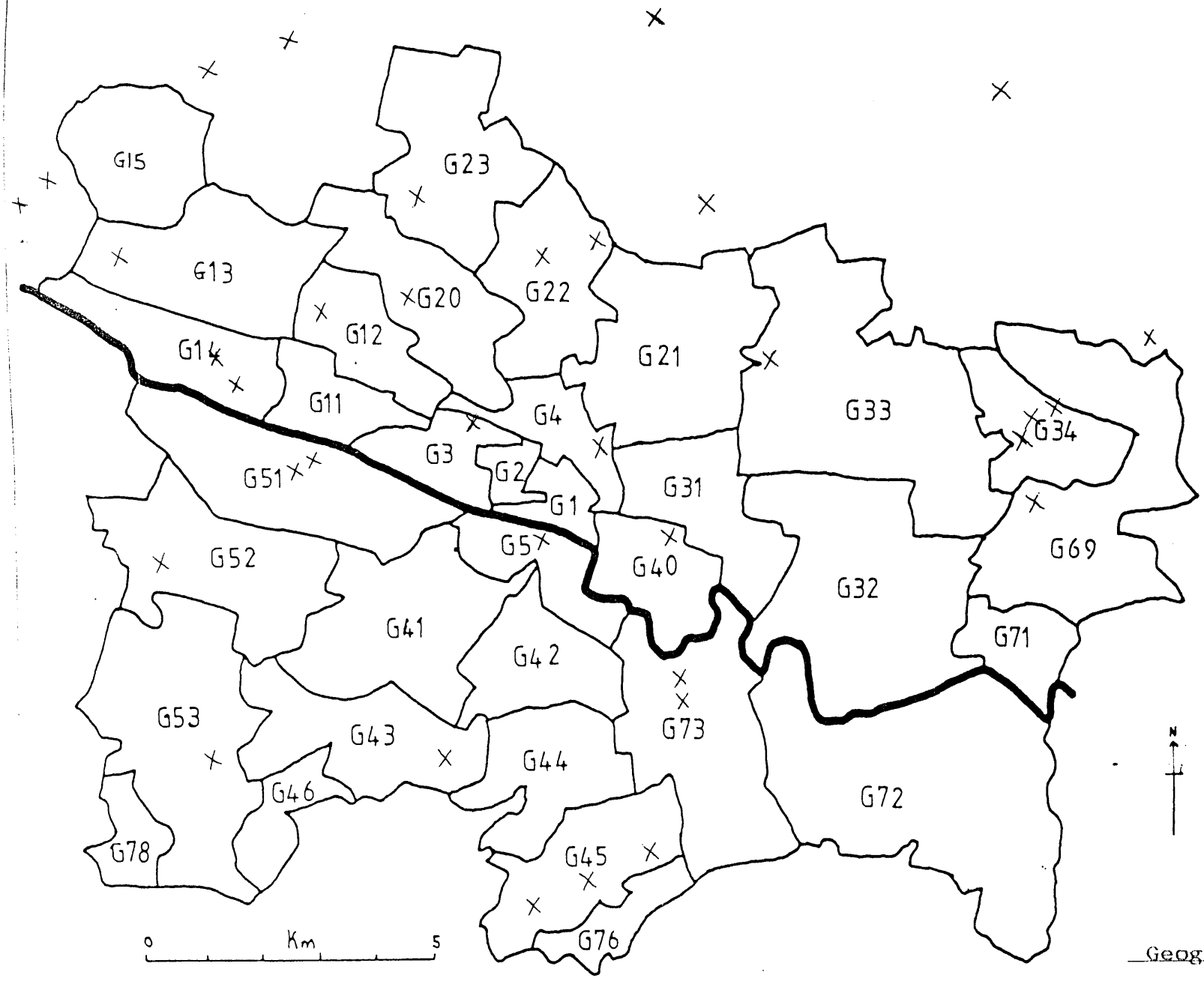


Figure 4.4a

Geographical distribution of schools in the sample

inevitably a degree of discussion and copying of responses. Therefore, in the final study, I always requested that desks be separated as much as possible to resemble 'exam conditions'.

In discussion with the 'Staff Tutor for Health Education', in Glasgow, I had been recommended not to include in my questionnaire, categories of response for children to indicate that they 'don't have' a mother, a father, or siblings. The reason for exclusion was that this option would upset some of the children. However, by excluding this category of response I thereby created a situation in which for many children there was no available option for truthful response. To accommodate this, the reading schedule employed for administering the questionnaire in the study included a description of the appropriate response for children in this 'don't have' group.

There were several other places in which the reading schedule expanded on the wording written on the questionnaire. The schedule is included in Appendix 2.3 for the reader's interest and reference.

4.4(7) Response

Agreement to take part in the study was obtained from 35 of the 40 head teachers (87.5%) in the sample. This provided access to all the pupils in Primary 6 classes within 35 of the 313 primary schools within Greater Glasgow - that is 11.2% of the target population. The sampling method ensured coverage of the range of 'deprivation' within the target area. The geographical distribution of the participant schools is shown in Figure 4.4a. A wide geographical coverage of the area was obtained, although there was a slight absence of schools located in the South West area of the city.

The five head teachers who did not agree to the participation of their school in the survey gave the following reasons:

- In one school Primary 6-stage pupils were already involved in a psychology project being carried out by Glasgow University.

- Two head teachers expressed concern that the questions about cigarette smoking would encourage their pupils to take up the habit.

- The other two head teachers gave no reason for their refusal to participate.

The questionnaire was completed by all children in the relevant classes who were in school on the day of the study. Of the 1007 Primary 6-stage children on the school rolls of the 35 participant schools in 1986-87, 920 (91.4%) were present to complete the questionnaire. The within-school response rates are presented in Table 4.1. They ranged from 67% to 100%.

In the follow-up study, questionnaires were completed by 905 Primary 7-stage children out of a total of 1008 on the school rolls for this year, thus giving an overall response rate of 89.8%. As shown in Table 4.1 the within-school response rates for the follow-up study ranged from 75% to 100%. Absenteeism in both years of the study was no higher than the usual rates of approximately 12%, and 774 children (84% of the Primary 6 respondents) participated in both years of the study.

The questionnaires were satisfactorily completed by all the respondents and so the results presented for this study refer to the totals of 926 and 904 children in Primary 6 and Primary 7 classes respectively. Missing data for individual questions are indicated on the tables.

A few words should be said concerning, firstly, how the size of the sample was determined and, secondly, the power of the study given the response rate achieved.

The decision about how many subjects to include in a sample always involves balancing the desired degree of precision of estimates against the practical limitations of time and resources.

The most fundamental variable to be estimated by this study was the proportion of children who had tried smoking cigarettes, and so calculations of the required sample size were based around this parameter. Of the children in my pilot study, 25% had tried smoking, and as this figure is very much in line with previous

research findings (4.2(2)) it was taken as an appropriate estimate for the sample size calculation.

The 95% confidence interval for a population proportion is of the form

$$p \pm 1.96 \sqrt{\frac{p\,(1 - p)}{n}}$$

In this case, p = 0.25 and values of *n* were calculated in accordance with a range of acceptable interval sizes. Three estimates of n were produced:

a) For a 95% Confidence Interval of the form $p \pm 0.01$, the required value of *n* would be **7203**.

b) For a 95% Confidence Interval of the form $p \pm 0.03$, the required value of *n* would be **800**.

c) For a 95% Confidence Interval of the form $p \pm 0.05$, the required value of *n* would be **288**.

Sample size (b), with 800 subjects, was seen to provide fairly precise estimates of levels of smoking and was also regarded as a feasible size in practical terms.

In order to achieve this sample size, I required 32 schools to participate in my study, because there are on average about 25 Primary 6 pupils in each school. Allowing for an expected response rate of about 80%, I therefore had to select 40 schools in my sample.

As described above, 87.5% of the 40 sampled schools in fact participated and the number of participating children was considerably greater than the 800 required. I can therefore be reassured that there is less than a 5% chance that the true population proportion (θ) lies outwith the interval from 3% above to 3% below the sample proportion.

The power of my study to detect a change in the proportion of children who had tried smoking cigarettes over the year of the study was calculated retrospectively from the sample size attained. From statistical tables (Machin &

Campbell, 1987), my study was seen to have more than 90% power to detect a 5% increase in this proportion from the base level of Primary 6.

4.5 ANALYSIS

The data were analysed quantitatively using SPSSx, the Statistical Package for the Social Sciences (Nie, 1983).

4.5(1) Statistical tests

1. The *Chi-square (X^2) test for association* as described by Armitage and Berry (1987) was applied to test for association between variables. I applied this test in the same manner as for the postal survey (section 3.5(1)), using the 5% level of significance. Yates' continuity correction was not applied for 2-by-2 tables, but where its application would have changed an association from being just significant to just nonsignificant this is noted.

   Together with descriptive statistics, the chi-square test was the only statistical test required to meet objectives 1, 2 and 3 of the study (p 174). It was also employed together with logistic regression analysis in meeting objective 4.

2. *Logistic regression analysis* as described by Kahn (1983) was applied to identify which factors were most important in discriminating between children who smoke and children who don't smoke, after correction for confounding between factors. This analysis was carried out using BMDP (Dixon, 1985). The results of the logistic regression analysis enabled calculation of the relative risks of being a smoker given the presence (or absence) of the critical variables.

3. *McNemar's test for comparison of proportions from matched samples*, as described by Bland (1987) was used to test for change within the cohort of children over the year of the study (objective 5).

The null hypothesis to be tested was that the proportions saying yes on the first and second occasions were the same; the alternative hypothesis being that one exceeded the other. If the null hypothesis were true, the frequencies of 'yes, no'

and 'no, yes' would be equal. These frequencies can be denoted by O_{yn} and O_{ny} respectively, and the test statistic is

$$X^2 = \frac{(O_{yn} - O_{ny})2}{O_{yn} + O_{ny}}$$

which follows a chi-squared distribution provided on 1 degree of freedom, that expected values are 'large enough'.

I have used McNemar's test to test for change within the group of 774 children who completed my questionnaire in both Primary 6 and Primary 7. The continuity correction was not applied in 2-by-2 tables, and the significant level was taken as 5%.

4.5(2) Hypotheses

The null hypotheses which were tested in the analysis are listed below, they are grouped in accordance with the objectives of the study.

a) H_0: There is no association between the children's health-related perceptions and

   1. sex
   2. social class

b) H_0: There is no association between the children's cigarette smoking behaviour (past, present and intended) and

   1. sex
   2. social class

c) H_0: There is no association between the children's smoking-related knowledge, attitudes and perceptions and

   1. sex
   2. social class

d) H_0: There is no association between the children's cigarette smoking behaviour and

1. their use of spare time
2. their nutritional behaviour
3. their consumption of alcohol
4. their pattern of exercise

e) H_0: There is no association between the children's cigarette smoking behaviour and

1. knowledge of the effects of smoking
2. attitudes to cigarette smoking
3. perceptions of cigarette smoking and cigarette smokers
4. smoking-related attitudes and behaviour of family members
5. smoking-related attitudes and behaviour of friends
6. smoking-related attitudes of teachers

In each case, statistical significance was tested at the 5% level.

Those questions of closed format on the questionnaire required little data transformation for the purpose of the analysis, although in some cases categories of responses were combined. Where this occurred, the new categorisation is clearly shown on the tables of results.

The children's reports of their mother's and father's occupations were coded according to the Registrar General's Classification of Occupations (OPCS, 1980) into the following groups:

(a) nonmanual occupations
(b) manual occupations
(c) unemployed
(d) disabled
(e) student
(f) housewife (for mothers only)

In addition there were the categories ' don't have', and 'unclassifiable'. The latter comprised those responses where it was impossible to determine the occupation with

sufficient certainty for classification. The index of multiple deprivation was also calculated for the participant schools in accordance with the method described in section 3.5(3).

The other open questions gave scope for totally unrestricted responses and required a complex and lengthy coding process.

4.5(3) Coding and analysis of the open questions

This discussion refers to the following three questions on the questionnaire:

a) Question 3 - 'Please write in your own words what it feels like to be healthy'

b) Question 18 - 'If you think you <u>will</u> be a regular smoker, please say why' OR 'If you think you <u>will not</u> be a regular smoker, please say why'

c) Question 20a - 'Here is a picture of a regular smoker of your age and sex. Please try to think of the reason why this child smokes cigarettes and write it in the space beside the picture'

Question 20b - 'Here is a picture of a child of your age and sex who is being offered a cigarette for the first time. Please try to think of the reasons for trying a cigarette <u>and</u> for saying 'no' and write them in the space by the picture'

Question 20c - 'Here is a picture of a child of your age and sex who has decided never to smoke cigarettes. Please try to think of the reason why this child will never smoke and write it in the space by the picture'

These questions are interesting in themselves as a means of gaining insight into children's concepts of health and their explanations of cigarette smoking behaviour. They are also an important source for enabling understanding of some of the other findings in the study.

The inclusion of these questions was one of the novel features of my study. There were, therefore, no previous research findings to indicate the likely categories of response and so the coding scheme was developed from scratch.

Firstly, I set out several principles for coding:

responses were coded in the order given

where the same category of response was given twice, it was coded only once

where the response was illegible or unintelligible it was coded as 'other'

where no response was given it was coded as 'missing'

As there was no limit placed on the content or length of answers (other than by the amount of space and the length of time given to respond) I had to decide how many distinct concepts to code for each question. This decision was based on the results of the pilot study in which only four children gave more than three concepts in answer to Question 3 and none gave more than two in answer to any of the sections in Questions 18 and 20. I therefore decided to code the first three district concepts given for Question 3, and the first two given for Questions 18 and 20.

The initial basic coding scheme was also based on the results of the pilot study, but had to be expanded to accommodate the diversity of responses given in the final study. This development took place during the coding of responses to the closed questions in the Primary 6 study. The coding of the open questions on all of the completed questionnaires was then carried out on the basis of this expanded coding schedule.

The reliability of coding was assessed by taking a one in ten sample of the questionnaires and recoding them 'blind'. 92 questionnaires were involved in this reliability test, each with 13 variables to be coded in relation to the three open questions being discussed here. Comparing this re-run with the initial codes allocated, there were no discrepancies at all for Question 3, five discrepancies (2.7%) for Question 18, and fourteen (1.9%) for Question 20. Of these nineteen discrepancies, eleven were caused by my coding as 'other' on the re-run, responses which I had previously placed within a specific category. All but one seemed to fit

satisfactorily into the specific category on reflection and seemed much more appropriately placed there than with the miscellaney of 'other'.

The detailed coding scheme used for these questions is enclosed in Appendix 2.2 for reference and therefore I shall not describe it here in detail. However, the reader is alerted to its format. All specific response categories have separate codes but they are grouped together into general types of concept for analysis. Thus for Question 20(d), for example, the first twelve codes all refer to the health effects of smoking but the specific effects have distinct codes.

Returning to the discrepancy of coding observed above, of the eight remaining 'miscodes', seven were coded within the same broad code group on both occasions but in different specific categories. Of these, four were more appropriately placed within the category allocated to them initially and the other three were coded more appropriately on the rerun. The final 'miscode' was inaccurately coded during the initial process.

Figure 4.5a represents the pattern of coding discrepancies of the 92 questionnaires and the thirteen variables of interest, only on two occasions (0.2%) were the initial codes allocated found to be in the wrong coding groups. In addition, in three other cases, the initial codes were of the correct group but were inaccurate in the specific code allocated. If all of the five cases are regarded as miscodes, then the level of inaccurate coding of these open questions in the data set as a whole is 0.4%.

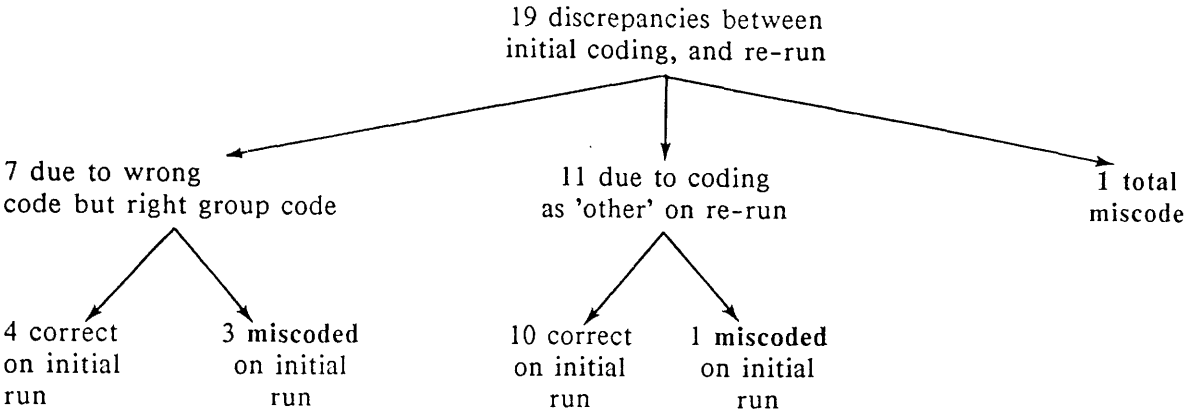


Figure 4.5a: Reliability of Coding

This figure may be compared with that of 0.3% for the inaccuracy in coding for the *closed* questions based, similarly, on a one in ten sample of all respondents. Again, questionnaires were coded 'blind' on a second occasion, and a comparison mode of the consistency of coding on the two occasions. The similarity of the proportions of miscodes found on the open and closed questions is encouraging because it suggests not only that the coding scheme for the open questions was comprehensive and reliable, but also that the monotony of coding the closed questions did not greatly reduce the accuracy of this process.

Some final words should be said about the grouping of categories of response to the open questions.

For Question 3, eight different distinct concepts of health were identified as follows:

1) 'Happiness': This refers to *emotional* state and encompasses the responses 'I feel good/happy/fine/bright/cheerful' and 'It's fun to be healthy'.

2) 'Energy': This is the state of feeling like doing things and is basically a *physical* concept. It encompasses 'I feel fit/full of energy/full of life/ready to go/active'.

3) 'Activity': This concept refers to *being able* to do things. Responses in this category all commence 'I can .....' or 'I am able to ....'.

4) 'Power': This is the idea of *the way* in which things are done 'fast', 'strongly', 'hard', 'well' and so on. It also encompasses ideas of a powerful or omnipotent self - 'I can do anything', 'I feel like superman'.

5) 'Freshness': This category, firstly, the *hygienic* ideal of 'cleanliness', and secondly the more *emotional* or spiritual idea of feeling 'renewed', 'refreshed' or 'relaxed'.

6) 'Absence of disease': This is the idea that health is the absence of disease. Therefore, when you feel healthy there's 'nothing wrong', you have 'no pains/sickness/cough', you are 'not miserable/depressed', and you 'don't have to take any tablets'.

7) 'Absence of mild symptoms': This is a very similar idea to the previous one but refers not to disease or illness, but rather, to feeling *below par*. It encompasses 'I'm not fed-up/bored/worried/in a bad mood' and 'I'm not tired/weak/yawning/feeling lazy'.

8) 'Negative concept': This concept can be viewed as the converse of the previous two concepts. Rather than defining health as the absence of disease or milder conditions, it views health only as something which, in its absence, gives rise to these things. Responses in this category all commenced, 'If I'm not healthy I ...' or 'When I'm not healthy ...'.

In addition to these eight there was a miscellaneous group of 'other' responses

For Questions 18 and 20 there was a much more detailed classification, although, there was extensive grouping of responses, for the purposes of analysis. The groups used were different for each question, but there is enough similarity to discuss them here in terms of 'reasons *for* smoking' and 'reasons for *not* smoking'.

Reasons *for* smoking were grouped as follows:

1) Influences of friends: behavioural example as well as favourable attitudes, persuasion and reinforcement.

2) Influences from the family: especially from parents and siblings.

3) Social norms: 'everybody' smokes, 'other children' smoke.

4) Curiosity: wanting to see what it is like.

5) For the image: to look 'tough', 'trendy', 'grown-up' etc.

6) As a coping mechanism.

7. For pleasure.

8. Ignorance of the dangers, or stupidity.

9. Addiction: being unable to stop or give it up.

Reasons for not smoking were grouped as follows:

1) Health effects: short- and long-term effects on health.

2) Smoking is bad: a general awareness that smoking is bad or dangerous but without mention of health effects.

3) Awareness of the dangers: being 'smart', 'knowing the facts'.

4) Attitudinal influences: of family, friends and teacher.

5) Behavioural example: of family, friends and teacher.

6) Valuing health: caring about health, wanting to be fit, having an ambition that would be thwarted by smoking.

7) Dislike of smoking.

8) The cost.

9) Fear: of becoming addicted, of dying etc.

In each case there was an additional category of 'other' responses which could not be classified satisfactorily into any of the above groups.

The more detailed coding scheme for these questions helps to illuminate the specific factors of importance within each response-group. Results of these within-group analyses are presented separately from the between-group analyses.

4.6 RESULTS

The study results are presented in the following sections:

4.6(1) Sample characteristics

4.6(2) General health beliefs

4.6(3) Cigarette smoking: behaviour

4.6(4) Cigarette smoking: knowledge, attitudes and perceptions

4.6(5) Factors associated with cigarette smoking

4.6(6) Cigarette smoking in the context of other health-related behaviours

4.6(7) Changes from Primary 6 to Primary 7

The tables to which these results refer are presented in Volume 2.

4.6(1) Sample characteristics

Children from 35 primary schools throughout Greater Glasgow participated in the survey. 920 children, of whom 52% were boys, completed the questionnaire in Primary 6. The following year 905 children in Primary 7 classes completed the questionnaire, with 53% of these being boys. The age and sex distribution of respondents is presented in Table 4.2. Of the Primary 6-stage respondents, 85% were 10 years old when they completed the questionnaire. Of the Primary 7-stage respondents 80% were 11 years old. There is not a complete mirror image in the age distribution of respondents in Primary 6 and Primary 7 because of school policies of retaining in Primary 7 those children (mostly boys) not thought to be ready to progress to secondary school.

Table 4.3 shows the distribution of response in terms of the level of deprivation associated with the school's location. There was a high level of response from all five quintiles of deprivation, but quintile three was slightly over-represented and quintile four was under-represented.

Table 4.4 shows the distribution of response in terms of the children's reports of parental occupation. Compared with figures for the population of Greater Glasgow (GGHB, 1984), the sample slightly under-represents men in

nonmanual occupations and slightly over-represents the unemployed. The children's reports of their father's occupation (classified broadly as nonmanual, manual, unemployed, or 'other') were highly statistically significantly associated with the deprivation score attached to the school's location [Table 4.5; $p < 0.001$].

4.6(2) General health beliefs

The children's beliefs about behavioural influences on health were examined in terms of the responses given on a five-point scale (from 'very good for health' to 'very bad for health') for each of seven listed behaviours. There was extensive agreement about the influences on health of the various given behaviour patterns [Table 4.6a - 4.6g]. The response offered by the majority of children in each case is given below:

: 61% of the Primary 6 respondents (70% of those in Primary 7) believed that 'reading books' has *no effect* on health.

: 81% of the Primary 6 respondents (84% of those in Primary 7) believed that 'exercise' is *very good* for health.

: 94% of the Primary 6 respondents (97% of those in Primary 7) believed that 'smoking cigarettes' is *very bad* for health.

: 59% of the Primary 6 respondents (62% of those in Primary 7) believed that 'eating a lot of sweets' is *quite good* for health.

: 67% of the Primary 6 respondents (74% of those in Primary 7) believed that 'exercise' is *very good* for health.

: 67% of the Primary 6 respondents (74% of those in Primary 7) believed that 'playing a musical instrument' has *no effect* on health.

: 57% of the Primary 6 respondents (65% of those in Primary 7) believed that 'going to bed late and missing out on sleep' *is quite bad* for health.

: 50% of the Primary 6 respondents thought that 'forgetting to brush your teeth' *is very bad* for health. The majority response for this behaviour among the Primary 7 group was *quite bad* for health, which was given by 57%.

There were few differences between boys and girls with respect to these beliefs. Boys were more likely to regard exercise as *very good* for health than were girls in Primary 6 ($p < 0.05$). In both years girls thought that 'going to bed late and missing out on sleep' ($p < 0.01$) and 'eating a lot of sweets' ($p < 0.01$) were worse for health than did boys.

Regarding their own state of health, the large majority of respondents stated that they were feeling fine (66% in Primary 6; 72% in Primary 7). 19% in Primary 6 and 15% in Primary 7 said that they often felt tired and 12% and 10% respectively said that they often had pains. There was no significant difference in the self-perceived health state of boys and girls [Table 4.7], nor was there any association with father's occupation [Table 4.8].

It is difficult to interpret these results without knowing what children understand by 'health'. Question 3 on the questionnaire, 'Please write in your own words what it feels like to be healthy', enabled me to investigate this issue. (The general principles and the categories used for coding responses to this question were described in section 4.5(3).)

In Primary 6, 139 children (15%) stated three different concepts of health, 397 children (43%) stated two, and 374 children (41%) stated one concept. The respective proportions for the 905 respondents in Primary 7 were 17%, 47% and 35%.

The distributions of response are presented in Tables 4.9 and 4.10. In interpreting these tables, it must be remembered that the figures refer to the number of *children* offering the concepts, and not to the number of times each concept was mentioned.

The distribution of response was very similar in Primary 6 and Primary 7. The most frequently mentioned concept of health was that of 'Happiness'. This was so for both years of the study, being mentioned by 35% of the children in Primary 6 and by 34% of those in Primary 7. 'Happiness' was particularly popular as the first-named concept of health. It was, therefore, not only the most frequently mentioned but arguably also the concept most important to the children, given that it was usually offered first.

'Energy' was the only other concept offered by more than 10% of the children, being mentioned by 18% in both Primary 6 and Primary 7. 'Negative' ideas of health, as the absence of disease or less serious conditions, were very rarely mentioned. Overall the children described health in very positive terms.

In Table 4.11, the responses of boys and girls are compared and found to be statistically significant different in both Primary 6 ($p < 0.005$) and Primary 7 ($p < 0.001$). Looking first at the Primary 6-stage responses, the greatest difference between observed and expected values was for the category 'other'. Boys were much more likely than expected by chance to give a response in this category. Boys were also more likely to state concepts of 'Activity' and 'Power', and were less likely to state concepts of 'Freshness', 'Happiness' and 'Energy' than were girls. The pattern in Primary 7 was very similar except for the fact that in this year there was no difference in the likelihood of boys and girls offering the concept 'Happiness'.

Several issues raised by this discussion of health concepts should be borne in mind. Firstly, the children viewed health in positive terms. In particular, the concepts of 'Happiness' and 'Energy' were predominant. These may be seen as parallel to the more adult ideas of 'Wellbeing' and 'Fitness'.

Secondly, there were significant differences in the health concepts held by boys and girls: boys were more likely to see health in terms of 'Activity' (being able to do things) and 'Power' (doing things well, fast, or without bounds), whereas girls were more likely to see health in terms of 'Freshness' (feeling clean or refreshed) and 'Energy' (feeling full of life).

These were the children's unprompted views about what it means to be healthy and have implications for their health-related behaviour. They must not, however, be confused with the results of tests of health-related knowledge, beliefs or attitudes.

Responses to the questions asking about who the children talk to about health, give an indication of the people who might have influenced the development of the children's health concepts and who could, thus, play a role in effecting healthful change in their health-related knowledge, attitudes and behaviour.

The children were asked how often they talked about health with:

a) their parents

b) their siblings

c) their friends

and for each could answer 'frequently', 'sometimes' or 'not at all'. Those without any siblings were told to leave all categories blank for this question.

In both Primary 6 and Primary 7, the children stated that they talked about health more often with their parents than with siblings or friends. Even so, one fifth of the children *never* talked about health with their parents - but the comparable figures, for never talking about health with siblings and with friends, were over 40% in both years [Table 4.12]. The potential for influence is, therefore, much greater for parents than it is for siblings and friends.

There were statistically significant differences in the patterns of conversations about health held by boys and girls. Most notably, boys were much less likely to *ever* talk about health with parents, siblings *or* friends. When they did talk with siblings or friends, however, they did so much more frequently than did girls.

There were also differences in the children's patterns of discussion about health according to their father's occupation [Table 4.13]. For 'discussions with parents', these differences were marginally significant ($p < 0.05$); for 'discussions with siblings' they were nonsignificant; but for 'discussions with friends' they were

highly significant (p = 0.001). Children whose fathers were in manual occupations or were unemployed generally discussed health much less than did those whose fathers were in the nonmanual or 'other' categories.

4.6(3) Cigarette smoking: behaviour

The children's reports of their own cigarette smoking behaviour are presented in Table 4.14. Of the Primary 6-stage respondents, 76% had *never* smoked a cigarette. This proportion fell to 62% among the Primary 7 children. It is notable that very few of the children reported smoking on any regular basis (> 1 cigarette per week) and of those who did, the majority were boys. However, there were no statistically significant differences in the proportions of boys and of girls who had ever tried smoking, in either Primary 6 or Primary 7.

There is, of course, an error associated with these estimates of the proportion of all children in Primary 6 and Primary 7 classes who have tried smoking. The standard error of a proportion is calculated according to the formula

$$ese = \frac{p\,(1 - p)}{n}$$

where p is the estimated proportion and n is the sample size.

For the Primary 6 respondents, p = 0.24 and n = 910, and so the standard error associated with the proportion of children who have tried smoking is **0.014**.

For the Primary 7 respondents p = 0.38 and n = 897, and the estimated standard error is **0.016**.

The associated 95% Confidence Intervals for the proportions who have ever smoked are:

a) 21.3% - 26.7%, for the Primary 6-stage group

and

b) 34.9% - 41.1%, for the Primary 7-stage group

Those who had tried smoking were asked to state how old they were when they first smoked a cigarette. Their responses are illustrated in Figures 4.1 - 4.3, which show the cumulative proportions who had tried smoking by each age. Boys experimented with smoking at an earlier age than did the girls, but the girls seemed to 'catch-up' at age 10-11.

The 'heaviness' of the children's smoking behaviour was assessed by asking how many cigarettes they had smoked over the last week and over the last 24 hours. As shown in Tables 4.15 and 4.16, the pattern was one of very light smoking although it was heavier among the Primary 7-stage respondents than among those in Primary 6. The children's responses to the questions about the number of cigarettes smoked showed a high level of consistency with their self-reported smoking status. Only in four cases did those who said that they had never smoked a cigarette report smoking during the week prior to the study. (The issue of consistency of response is examined in section 4.7(1)).

The final question relating to cigarette smoking behaviour was question 17, which asked about the children's intentions to smoke in the future. 85% of the children in Primary 6 and 83% of those in Primary 7 said that they would never become regular smokers. Of those who thought that they would become regular smokers, the most popular age for doing so was during the period just after leaving secondary school for good - that is when 16-20 years old [Table 4.17]. This was the case among both the Primary 6 group and the Primary 7 group of respondents, and there were no significant differences in the intentions of boys and girls.

However, there were statistically significant differences in the intentions of children who had never smoked a cigarette and those who had at least tried smoking ($p < 0.001$ for both years). 89% of the never-smokers in Primary 6 said that they would never become regular smokers, whereas the proportion saying this among those who had tried smoking was just over 71%. The corresponding proportions for the Primary 7 group were 89% and 73% respectively [Table 4.18].

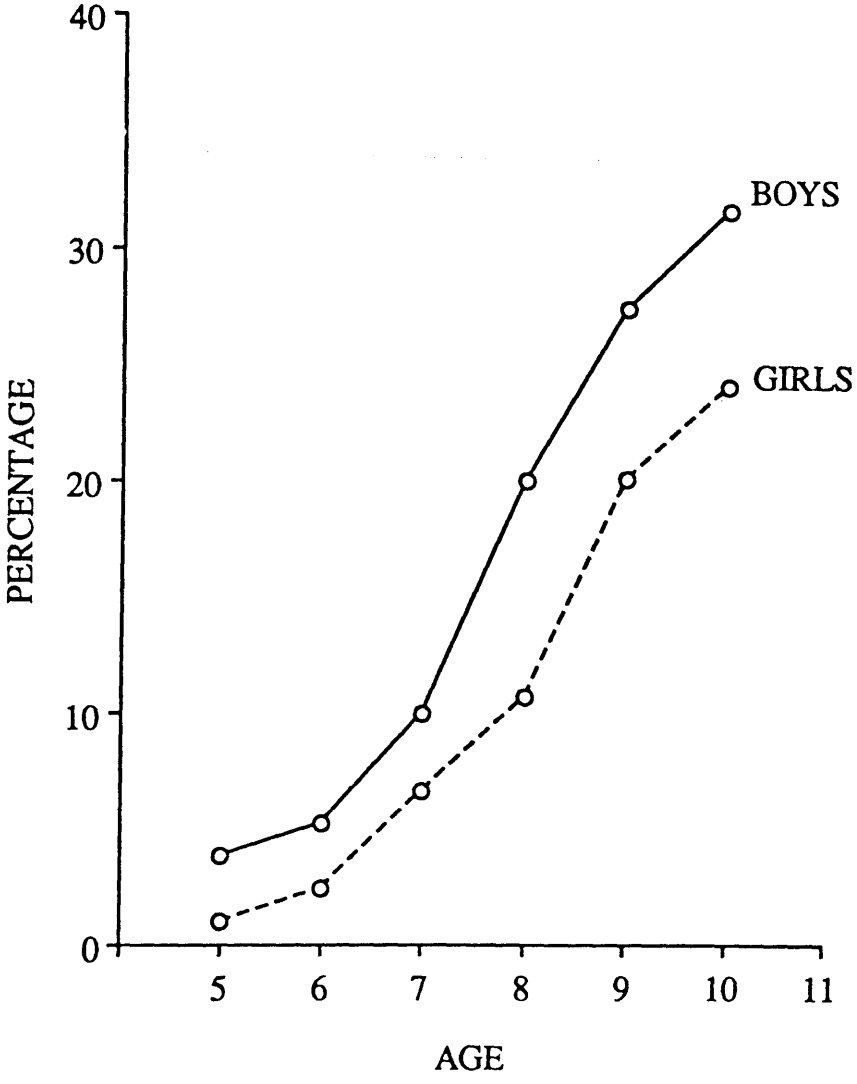


Figure 4.1 Cumulative percentage of children in Primary 6 classes who had tried smoking by each age

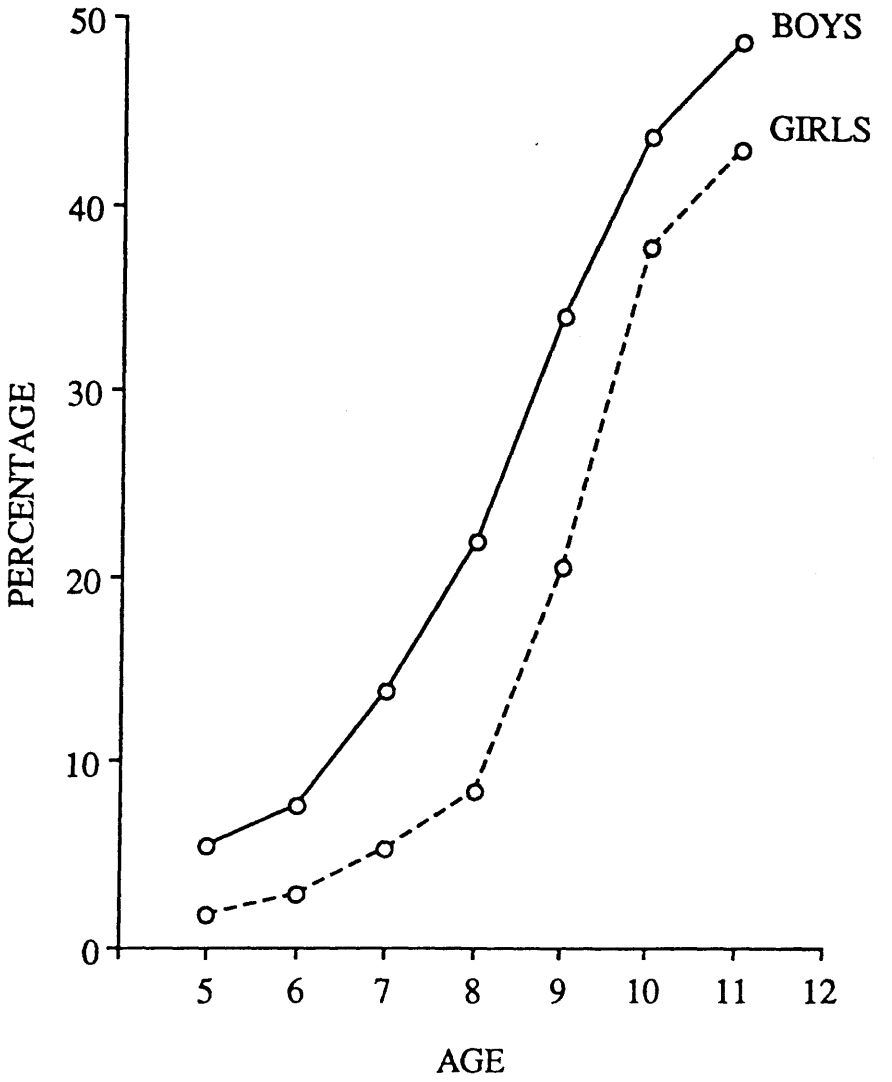


Figure 4.2 Cumulative percentage of children in Primary 7 classes who had tried smoking by each age

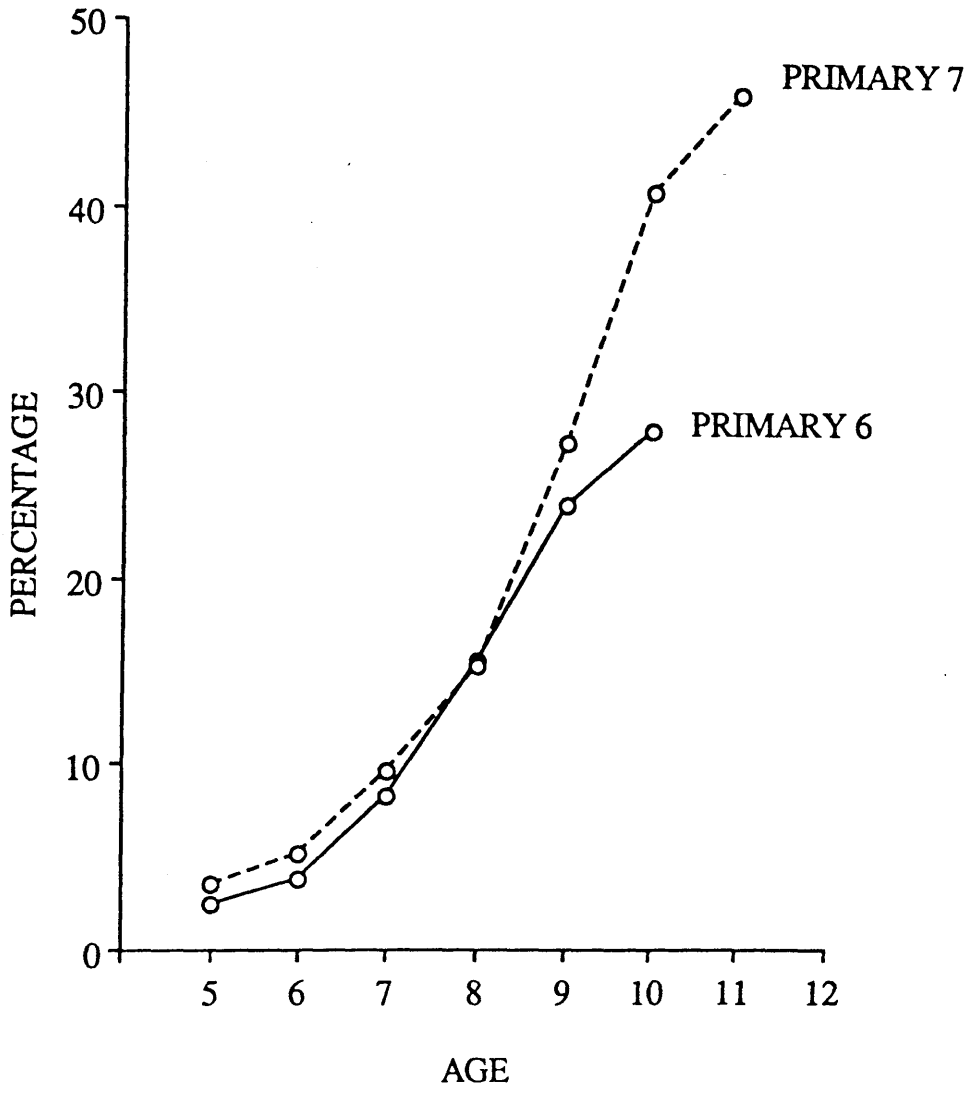


Figure 4.3 Cumulative proportion of children in Primary 6 and in Primary 7 who had tried smoking by each age

4.6(4) Cigarette smoking: knowledge, attitudes and perceptions

The children demonstrated extensive knowledge about the health effects of smoking [Table 4.19]. In both years over 90% knew that smokers are more likely to have a cough and that smoking can cause lung cancer; and over 80% knew that it can cause bronchitis and heart disease. The least widely recognised health effect was that smokers are more likely to get out of breath - only 62% of the Primary 6 and 69% of the Primary 7-stage children said that this was true. In general, boys and girls were equally knowledgeable. Only in relation to the statement 'smokers are more likely to get out of breath' was there a sex difference in knowledge - boys were significantly more likely than girls to say that this is true [Table 4.20] This difference occurred both in the Primary 6 group ($p < 0.01$) and in the Primary 7 group ($p < 0.001$).

Of the nine smoking-related attitudes measured in the questionnaire, the most widely held was 'smoking is a waste of money'. 94% of the Primary 6- and 93% of the Primary 7-stage respondents agreed with this. The children largely disagreed with the statement 'smoking is fun' (90% in P6, 86% in P7), but agreed that 'smoking makes you smelly' (79% in P6, 85% in P7) and that 'people of my age smoke to "show off"' (72% in P6, 82% in P7). There was less consensus about whether smoking calms your nerves, keeps your weight down, makes you look tough, gives you confidence, or makes you feel grown-up [Table 4.21].

On comparing the attitudes held by boys and girls, some statistically significant differences emerged [Table 4.22]. Among the Primary 6 respondents, girls were significantly more likely than boys to agree that 'smoking makes you smelly' ($p < 0.01$) and that 'smoking makes you feel grown-up' ($p < 0.05$). Among the Primary 7 respondents, boys were significantly more likely than girls to agree that 'smoking calms your nerves' ($p < 0.01$). None of the other attitudes was significantly associated with sex.

The children's perceptions of smokers and nonsmokers of their age were assessed and compared with their perceptions of themselves. The three questions of relevance here are questions 5, 19 and 27 on the questionnaire. These questions were identical in structure although the order of the traits to be assessed was drawn randomly in each case.

Looking first at the children's perceptions of themselves, we can see that they had a very positive self-image [Table 4.23]. Over 80% in both years saw themselves as 'friendly', 'clever at school' and 'good at sports'. A less substantial majority saw themselves as 'fashionable and trendy' (63% in P6, 74% in P7), 'grown-up' (65% in P6' 68% in P7) and as not 'shy' (69% in P6, 67% in P7).

Respondents held a similarly positive image of nonsmokers [Table 4.24]. Over 80% in both years perceived nonsmokers as 'clever at school', 'good at sports' and 'fashionable and trendy'. There were, however, some changes in perception from Primary 6 to Primary 7. 90% of the Primary 6 respondents regarded nonsmokers as 'friendly', but this proportion was only 67% among the Primary 7 respondents; the majority (57%) of Primary 6 respondents perceived nonsmokers as 'grown-up' but among the Primary 7 the proportion doing so was only 44%; and only 36% of the Primary 6 group regarded nonsmokers as 'shy', whereas 87% of the Primary 7 respondents did so. Compared with the Primary 6-stage children, those in Primary 7 regarded nonsmokers as less friendly, less grown-up and more shy.

The children's perceptions of smokers of their age seems to be rather less clear [Table 4.25]. For the traits 'grown-up' and 'shy' there was a high level of consensus, with around 80% of the children in both years perceiving smokers as being grown-up but not shy. A majority of the children in both years also regarded smokers as being 'fashionable and trendy', but not 'good at sports' or 'clever at school'. These majorities were not, however, substantial. Finally, about half of the children in each year regarded smokers as 'friendly', and about half as 'unfriendly'.

Chi-squared tests were carried out to see if there were any statistically significant differences in the perceptions of boys and girls. The results of these tests are presented in Tables 4.26 - 4.28.

Among the Primary 6-stage children, boys perceived themselves as less clever ($p < 0.01$); less shy ($p < 0.005$); less friendly ($p < 0.001$); less fashionable and trendy ($p < 0.05$); and better at sports ($p < 0.001$) than did girls. Among the primary 7-stage children all of these differences except that relating to cleverness were again present.

There were sex differences also in the children's images of smokers. Among the Primary 6 group, boys were significantly less likely to perceive smokers of their age as being grown-up ($p < 0.001$) or fashionable ($p < 0.005$), and were more likely than girls to perceive them as being shy ($p < 0.01$). Of these three differences, the only one present in Primary 7 was that relating to 'fashionable and trendy' ($p = 0.001$). In addition, boys in Primary 7 were significantly more likely than girls to perceive smokers as being 'good at sports' ($p < 0.05$).

Perceptions of nonsmokers showed fewer differences between boys and girls. In Primary 6, boys were less likely than girls to regard nonsmokers as 'fashionable and trendy' ($p < 0.05$). In Primary 7, boys were less likely than girls to regard them as 'shy' ($p < 0.01$).

It was also of interest to test for any significant differences between the children's image of smokers and their image of nonsmokers. This was done using McNemar's test, for those children who participated in the study both in Primary 6 and in Primary 7. There were highly significant differences ($p < 0.001$) for all the characteristics, with nonsmokers being perceived as more friendly, more fashionable, better at sports, cleverer at school, more shy, but less grown-up than were smokers. The pattern of response for Primary 6 and Primary 7 is shown in Figure 4.4(a).

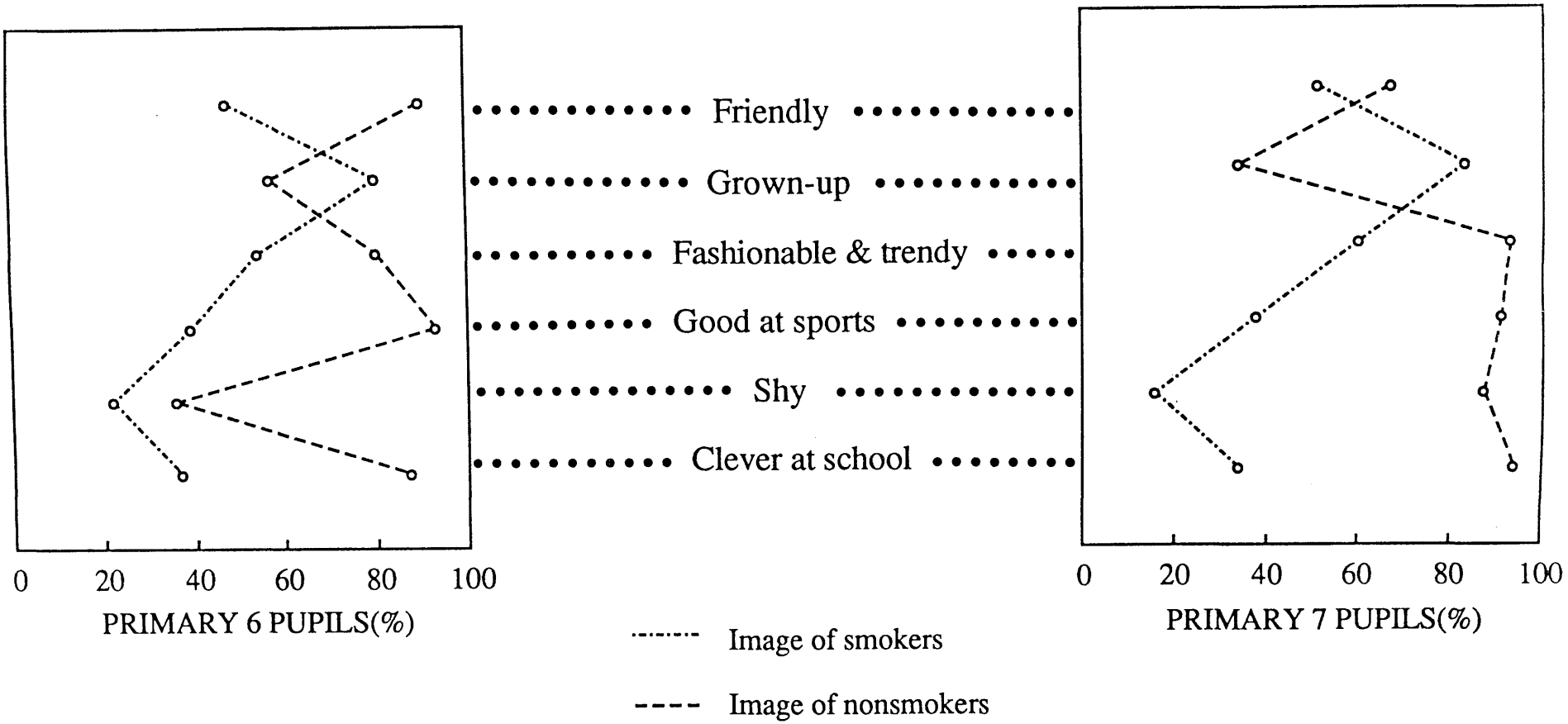


Figure 4.4(a) Pupils' perceptions of smokers and nonsmokers

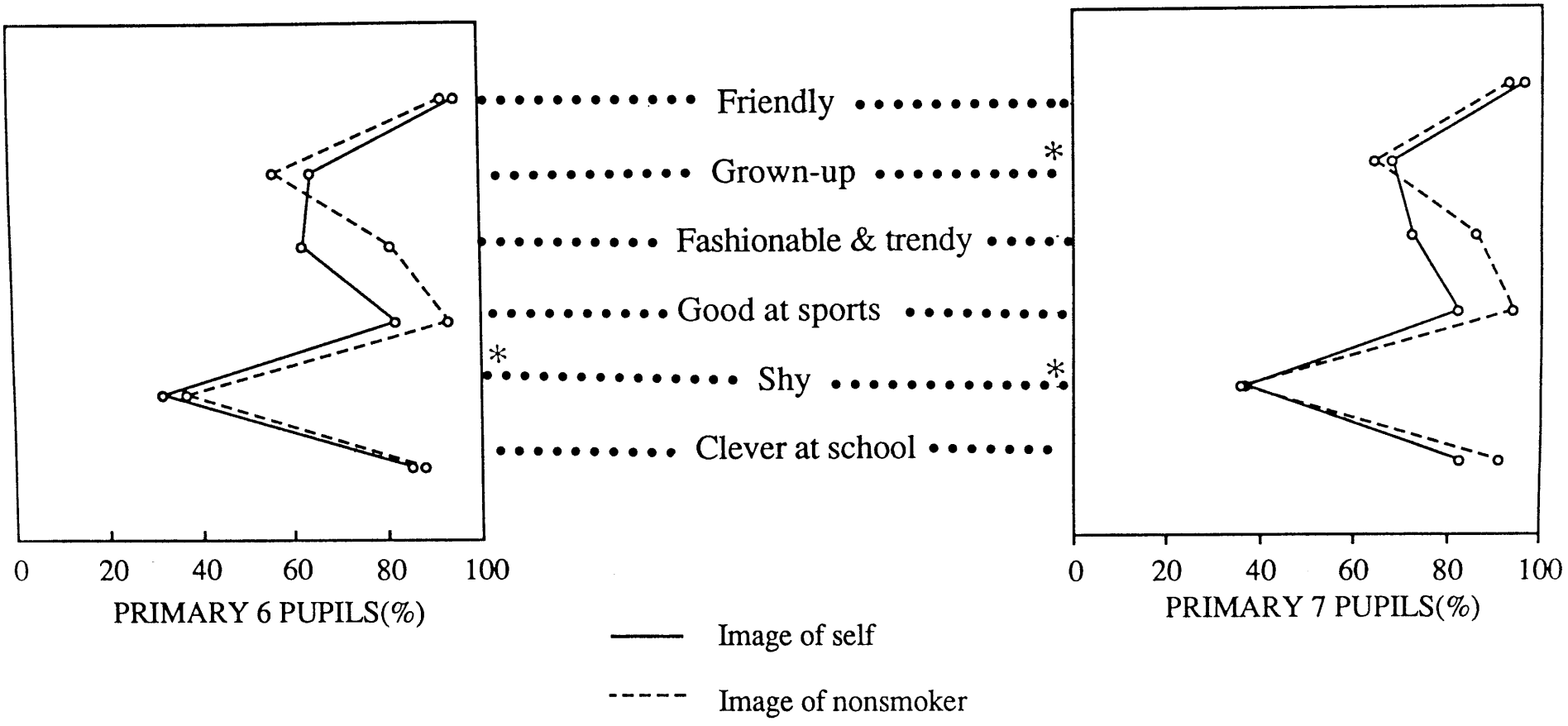
Further comparisons tested for differences between never-smokers' perceptions of self and of nonsmokers; and ever-smokers' perceptions of self and of smokers. There were clear overall patterns (Figures 4.4(b) and 4.4(c)) but the specific picture was different in the two years.

In Primary 6, never-smokers saw themselves as significantly different to nonsmokers on all characteristics. In other words, they did not perceive themselves as 'typical' nonsmokers on any of the given traits. Never-smokers perceived nonsmokers as cleverer ($p < 0.05$), shyer ($p < 0.05$), better at sports ($p < 0.001$), and more fashionable and trendy ($p < 0.001$) than themselves, but saw themselves as more grown-up ($p < 0.01$) and more friendly ($p < 0.1$) than the typical nonsmoker.

The never-smokers in Primary 7 perceived no significant differences between themselves and nonsmokers in relation to being shy or grown-up. All the other differences existant at Primary 6-stage were, however, present and in the same direction.

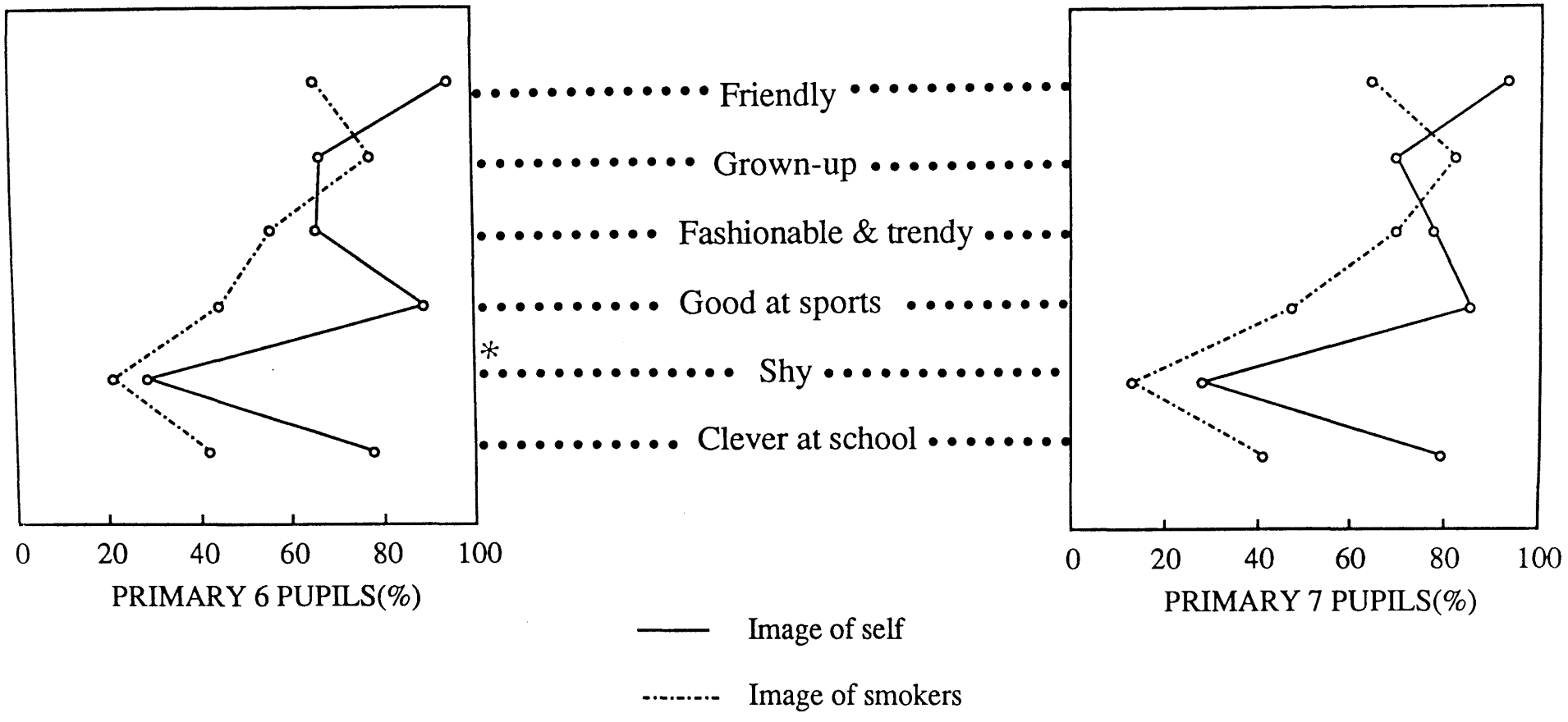
Figure 4.4(b) illustrates the images held of self and nonsmokers, and shows that significant differences existed even in cases where very similar proportions of children attributed the characteristic to 'self' and to 'nonsmokers'. An example is the trait 'friendly', which 93% of the Primary 7 respondents attributed to nonsmokers and 96% attributed to themselves. This very small difference was significant at the 5% level on McNemar's test, but in practical terms it has few implications.

Those children who had at least tried smoking did not as a group perceive themselves as 'smokers'. In both Primary 6 and Primary 7 they saw themselves as cleverer ($p < 0.001$), better at sports ($p < 0.001$), more friendly ($p < 0.001$), more fashionable and trendy ($p < 0.05$) and less grown-up (P6: $p < 0.001$, P7: $p < 0.05$) than typical cigarette smokers of their age. In Primary 6 they also perceived themselves as shyer ($p < 0.001$) but in Primary 7 this difference was no longer significant.



* Difference not significant at 5% level

Figure 4.4(b) Perceptions of self & nonsmokers by children who have never smoked



* Difference not significant at 5% level

Figure 4.4(c) Perceptions of self & smokers by children who have tried smoking

It seems, then, that there is a rank order in the children's images, with a 'nonsmoker' being the most desirable state. The children's images of themselves (regardless of their smoking status) were somewhat less favourable than their images of nonsmokers and much more favourable than their images of smokers. Only the trait 'grown-up' contradicted this trend, with smokers being seen as the most grown-up of the three groups.

As a simple investigation of the people who might have influenced their attitudes towards smoking, their knowledge of the health effects of smoking, and their perceptions of smokers and nonsmokers, the children were asked to indicate how often they talked about cigarette smoking with:

(a) their parents

(b) their siblings

(c) their friends

For each they could answer 'frequently', 'sometimes' or 'not at all', and those without any siblings were told to leave all categories blank for this question.

The distributions of response are presented in Table 4.29. In both Primary 6 and Primary 7, the children stated that they talked about smoking more often with their parents than with siblings or friends. Even so, 27% of the Primary 6-stage children and 22% of those in Primary 7 said that they *never* talked about cigarette smoking with their parents. The comparable figures for discussions with siblings were 64% and 58% respectively; and for friends, 56% and 52%. Therefore, although a substantial proportion of children never talked about smoking with their parents, the potential for influence is much greater for parents than it is for siblings or friends.

There were statistically significant differences in the patterns of conversations about smoking held by boys and girls. Most notably, boys were much less likely *ever* to talk about smoking with parents, siblings *or* friends. Moreover, even those who said that they did talk about smoking, reported doing so less frequently than did girls.

The patterns of discussion about cigarette smoking were associated also with the children's reports of their father's occupation [Table 4.30]. This association is difficult to interpret, but if we look at the children who reported *never* discussing smoking we see that they were more likely to have a father who was unemployed or in manual work than would be expected by chance. This was the case for discussions with parents, siblings *and* friends. Interestingly, though, the children with fathers in these occupational groups who *did* report having discussions about smoking indicated doing so more frequently than did those whose fathers were in 'nonmanual' or 'other' occupations.

The examination of the children's perceptions has so far concentrated on their perceptions of smokers and nonsmokers. Complementary to those perceptions of the *type of people* who smoke are perceptions of the *reasons* for smoking and for not smoking. These were investigated by the open questions 20(a) to 20(c).

As described in section 4.5(3), an extensive scheme was developed, with about 35 codes for each question. This coding scheme was devised such that these detailed codes could be grouped into broader categories. Thus, for example, reasons such as:

smoking is bad for your health

smoking causes cancer

smoking gives you a cough

smoking can kill you

and so on are grouped together as 'health' reasons

Also:

it's my nerves

no one likes me

it takes my mind off things

I've nothing else to do

are grouped as 'coping' reasons. The coding key sheet is presented in Appendix 2.2. There was no limit put on the number of reasons which each child could give, but

based on the patterns of response in the pilot study, I recorded only the first two reasons given for each question. Very few children gave more than two reasons and the majority gave only one.

Looking first at the pattern of reasons given why a children of Primary 6 age *would* be a regular smoker. The most important reasons, as perceived by the children, were:

Image, which composed 37% of reasons given

and

Friends, which composed 17% [Table 4.31].

Within the group of 'Image' reasons, the most frequently mentioned was that children smoke to look grown-up or big. The next most common was that they smoke to look tough, be a bully, or *feel* big. In this age group, reasons to do with looking cool or trendy were rarely mentioned [Table 4.33]. The Primary 7 responses showed little variation from this, with 'Image' and 'Friends' once again being perceived as the most important reasons for smoking. The proportion of responses falling within the image category had increased, however, from 37% in Primary 6 to 50% in Primary 7 [Table 4.43]. There was little difference in the pattern of the responses given by boys and girls, except that girls both in Primary 6 and Primary 7 placed more importance on the role of friends. In Primary 6 reasons to do with the role of friends constituted 14% of those given by boys compared with 20% of the reasons given by girls. In Primary 7 the proportions were 13% and 19% respectively.

In response to the question asking for reasons why children would decide to *never* smoke a cigarette, the most frequently suggested reasons were health reasons. Most important were reasons to do with the various health effects of cigarette smoking; and in second place were positive health reasons - the child will never smoke because he cares about this health, wants to stay healthy, wants to live for a long time, and so on. The third-ranked category for this question covered reasons which stated that smoking is dangerous or bad, but did not relate these dangers

specifically to health [Table 4.34]. The pattern obtained from the children in Primary 7 looks very similar indeed. Again, health effects, caring about health, and general dangers were the most frequently mentioned reasons [Table 4.35].

Within the group of reasons covering the health effects of smoking, the most commonly cited effects were, firstly, the general one that smoking is bad for your health, followed by 'smoking can kill you', and then 'smoking causes cancer'. The shorter-term effects, such as 'smoking gives you a cough' were mentioned much less frequently [Table 4.36].

Health reasons were by far the most frequently-stated reasons for never smoking by both sexes. Not smoking because of having a positive health outlook - caring about health, wanting to live for a long time, and so on - was offered significantly more often by boys than by girls in both years. One explanation for this might be that these reasons were frequently stated within the context of sport and exercise (usually football) which may be more important to boys than to girls of this age group.

If we now turn to the situation when a child is first offered a cigarette, we can look at the reasons thought to be important in the acceptance or refusal of that first cigarette. Curiosity - 'He wants to see what it's like; he's never tried before' - was regarded as the most important reason for *accepting* the first cigarette. The other important reasons were the roles of image and friends - that is, the same reasons as were important for being a *regular* smoker [Table 4.37]. Once again the role of image became more important in Primary 7, increasing from 17% in Primary 6 to 23% in Primary 7 [Table 4.38]. Within the group of image reasons, looking *grown-up* was the most frequently stated, followed by looking *smart* or *clever* [Table 4.39].

The most frequently stated reasons for *refusing* a cigarette when first offered one were reasons concerning the health effects of smoking [Tables 4.40 & 4.41]. Again the most pertinent health effects were that smoking is '*bad for health*', '*can kill you*' and '*can cause cancer*' [Table 4.42]. Responses such as *'He knows the*

facts about smoking' and '*He's no daft*' have become more important in Primary 7, increasing from 8% to 12% [Table 4.41].

It is interesting now to compare the children's perceptions of why an *unnamed* child of their age and sex would or would not smoke, with the reasons they gave for their *own* intentions.

Those who gave a reason for their intention to become a smoker, most frequently offered the following:

a) that their friends were smokers or would encourage them

b) that their parents smoked [Table 4.43].

The explanations to do with image which were so prevalent in explanations of smoking by other children were almost absent in the respondents' descriptions of their own intentions.

In contrast, the children's reasons for *not* becoming a smoker themselves were very similar to those offered to explain why an unnamed child of their age and sex would never smoke. The health effects of smoking were again the most frequently offered explanations [Table 4.44] and, of these health effects, the most frequently cited was the general one that '*smoking is bad for your health*' [Table 4.45]. Other commonly mentioned effects were that '*smoking can kill you*' and that '*smoking causes cancer*'. These three categories together accounted for 59% of all the reasons given in Primary 6, and 48% of those given in Primary 7 for not becoming a regular smoker. An important response for explaining personal intentions not to become a smoker was the experience of not liking smoke or smoking. Responses in this 'I don't like it' group constituted 8.4% of the reasons in Primary 6 and 13.7% of those offered in Primary 7. Reasons of this type were seen as much less important for explaining why other children would not smoke [Tables 4.34and 4.35].

4.6(5) Factors associated with cigarette smoking

Chi-squared tests were carried out to identify those factors which were associated with cigarette smoking among the respondents. Because of the very small numbers of children who were smoking on any regular basis, the analyses were designed to compare the characteristics of 'never-smokers' with those 'ever-smokers' who had tried smoking at least once. Statistically significant results therefore indicated the variables associated with trying smoking rather than those associated with smoking on any regular basis. For ease of discussion, the variables which were tested for association with smoking behaviour may be grouped broadly as 'Individual factors' and 'Social factors'.

Individual factors

The variables categorised as 'individual factors' include socio-demographic details as well as the attitudes and beliefs held by respondents.

Neither sex nor age was found to be significantly associated with smoking behaviour. There were, however, significant associations between smoking behaviour and reports of both paternal ($p < 0.001$) and maternal ($p < 0.005$) occupation [Table 4.46]. Children whose fathers were employed in either nonmanual or manual occupations were less likely to have tried smoking than were those whose fathers were unemployed, or were in some other occupational category such as 'student' or 'disabled'. The same pattern existed in relation to mother's occupation.

Several attitudes and beliefs were also significantly associated with smoking behaviour. In both Primary 6 and Primary 7 ever-smokers were less likely to think that cigarette advertisements should be banned [Table 4.47; P6: $p = 0.01$, P7: $p < 0.005$]. Ever-smokers in both years were also more likely to perceive a higher prevalence of smoking among children of their age [Table 4.48; P6: $p < 0.05$, P7: $p < 0.01$].

There were also some differences in the attitudes held towards cigarette smoking [Table 4.49]. Within the Primary 6-stage respondents, ever-smokers were significantly more likely to agree that 'smoking is fun' ($p < 0.01$), and less likely to agree that 'smoking makes you smelly' ($p < 0.01$). There is an indication that ever-smokers were also more likely to think that 'smoking calms your nerves' - the association was just significant ($p = 0.041$) but became just nonsignificant after Yates' correction was applied ($p = 0.052$).

Within the Primary 7-stage respondents, too, ever-smokers were significantly more likely to agree that 'smoking is fun' ($p < 0.01$); and for this group the association between smoking and agreement that 'smoking calms your nerves' was highly significant ($p < 0.01$). Two other attitudes were associated with ever-smoking among the Primary 7 respondents: 'smoking makes you feel grown-up' ($p < 0.001$) and 'smoking gives you confidence' ($p < 0.005$). Unlike the situation in the Primary 6 year group, the children in Primary 7 who had tried smoking were no less likely to think that 'smoking makes you smelly'.

There were, therefore, several differences between never-smokers and ever-smokers in terms of their attitudes to smoking. In contrast there were no significant differences at all in their knowledge of the health effects of smoking.

There *was* a difference between ever-smokers and never-smokers in Primary 7, however, with respect to their ability to name brands of cigarette. Ever-smokers were significantly more able to name *one* brand ($p < 0.05$); and much more significantly able to name a *second* brand of cigarette ($p < 0.001$) than were never-smokers [Table 4.50].

There was no association in either year group between cigarette smoking behaviour and the frequencies of conversations held about smoking with siblings or friends, but in Primary 7 ever-smokers were significantly less likely to discuss cigarette smoking with their parents than were never-smokers. .

Social factors

The variables categorised as 'social factors' are the attitudinal and behavioural characteristics of the respondent's family, friends and teachers. Again, some differences in these variables were found between those who had and those who had never tried smoking.

Let us look first of all at the attitudes of significant others.

Among the Primary 6-stage respondents, those who had at least tried a cigarette were less likely than never-smokers to believe that their friends would think them stupid and more likely to believe that their friends either would not bother or would think it just like themselves [Table 4.51: $p < 0.001$]. Ever-smoking was associated neither with the perception that the child's father would mind nor with the perception that his mother would mind. However, those respondents who thought that *both parents* would mind if they saw them smoking were significantly less likely to have tried smoking [Table 4.52: $p < 0.05$].

In Primary 7 also, ever-smoking was significantly associated with the children's perceptions of the attitudes of friends [Table 4.51: $p < 0.001$) and of both parents together [Table 4.52: $p < 0.01$]. In addition, however, those who had tried smoking were significantly less likely to think that their father ($p < 0.05$) or that their mother ($p < 0.005$) would mind if they saw them smoking [Table 4.52]. This association with each parent separately was not observed among the Primary 6-stage respondents. There was also an association between ever-smoking and the Primary 7-stage children's perceptions of their *teacher's* attitudes towards smoking. Those who had tried a cigarette were significantly less likely to think that their teachers would mind if they saw them smoking [Table 4.52: $p < 0.01$]).

Looking now at the behaviour of family and friends, once again several factors were significantly associated with the children's own smoking behaviour. Within both the Primary 6 and the Primary 7 year groups, ever-smokers were significantly more likely to have friends who smoked cigarettes [Table 4.53; P6: $p < 0.001$, P7: $p < 0.001$]; older brother(s) who smoked cigarettes [Table 4.54; $p <$

0.001]; older sister(s) who smoked cigarettes ($p < 0.001$); a father who smoked [Table 4.55; P6: $p < 0.05$, P7: $p < 0.001$]; or at least one parent who smoked (P6: $p < 0.01$, P7: $p < 0.001$). Also, among the Primary 7-stage respondents, ever-smokers were significantly more likely to have a mother who smoked cigarettes ($p < 0.001$).

The variables shown from these X^2 tests to be significantly associated with smoking were entered into logistic regression analyses for the two year groups.

The stepwise logistic regression analysis run on the Primary 6-stage data used only six of the variables associated with trying smoking to discriminate between never-smokers and ever-smokers. Interpreting these results in terms of relative risk and after adjusting for all other significant factors, the following picture emerged:

1) A child who held the attitude '*smoking is fun*' was 2.69 times as likely to have smoked than was a child who did not hold this attitude.

2) A child who had at least some *friends who smoke* was 2.50 times as likely to have smoked than was a child with no friends who smoke.

3) A child with an *older sister who smoke*d was 2.17 times as likely to have tried smoking than was a child without.

4) A child who *intended to become a regular smoker* at some time in the future was 2.08 times as likely to have tried smoking than was a child who intended never to be a regular smoker.

5) A child with and *older brother who smoke*d was 2.03 times as likely to have tried smoking than was a child without.

6) A child with one *parent who smoke*d was 1.88 times as likely to have tried smoking than was a child whose parents were nonsmokers. If both parents smoked, he was 1.36 times as likely as a child with nonsmoking parents, and 0.72 times as likely as a child with one parent who smokes, to have tried smoking himself.

7) A child who thought that his *friends would think him just like them* if they saw him smoking was 1.40 times as likely to have tried smoking than was a child who thought his friends would not bother. In contrast, a child who thought his friends would perceive him as stupid was only 0.51 times as likely to have tried smoking than was a child who thought his friends would not bother.

Figure 4.5a shows the probability distributions of never-smoking based on this model, for the group of never-smokers and for the group of ever-smokers in Primary 6. We can try to identify a group of children at high risk of being ever-smokers on the basis of these factors, but a large amount of misclassification results regardless of the cut-off point selected. This problem is best illustrated by some examples:

(a) If we take the point at which the probability of being a nonsmoker is 0.675, the model correctly classifies as ever-smokers 75 (36.9%) of the 203 children who had at least tried smoking - but at the cost of wrongly classifying 11.9% of the never-smokers.

(b) If we take the probability of 0.542 as our cut-off point, the model correctly classifies as ever-smokers 53 (26.1%) of the 203 children who had tried smoking - but wrongly classifies 5% of the never-smokers.

These are two of the 'best' cut-off points, and although they yield the lowest levels of misclassification they clearly illustrate the inadequacy of the model for predicting smoking status on an individual basis.

The logistic regression analysis of the Primary 7-stage data produced a rather different picture of the variables which account for experimentation with cigarettes. In summary, the children who had tried smoking were:

: 1.61 times as likely to have at least some *friends who smoke* cigarettes.

: 2.14 times as likely to have an *older brother who smokes* cigarettes.

: 1.37 times as likely to have one parent, and 2.29 times as likely to have two *parents who smoke* cigarettes.

: 1.80 times as likely to hold the attitude *'smoking makes you feel grown-up'*.

: 1.43 times as likely to hold the attitude *'smoking calms your nerves'*.

: 1.80 times as likely to be able to *name two brands* of cigarette.

: 1.40 times as likely to think that *'most children of their age smoke* cigarettes'.

: 0.71 times as likely to think that their *mother would mind* if she saw them smoking.

: 2.02 times as likely to *intend to become regular smokers in the future.*

: 0.54 times as likely to *talk about smoking* with their parents frequently, and 0.69 times as likely to do so sometimes than nonsmokers were.

Children who thought that their *friends would think them 'very stupid'* for smoking were 0.49 times as likely to have tried a cigarette than were those who thought that their friends 'would not bother at all'. Those indicating that their friends would think them 'just like them' were no more likely to have tried smoking than those thinking their friends wouldn't bother.

Mother's occupation also helped to discriminate between never-and ever-smokers. However, the only occupational category which was significant on its own was the heterogeneous 'other' category. This makes the role of mother's occupation rather difficult to interpret.

Figure 4.5b shows the probability distributions of never-smoking based on this model, for the group of never smokers and for the group of ever-smokers in Primary 7. As was the case for the Primary 6 children, there is no entirely satisfactory cut-off point for discriminating between ever-smokers and never-smokers:

(a) At the point where the probability of being a nonsmoker is 0.608, the model correctly classifies as ever-smokers 209 (66.6%) of the 314 children who had at least tried smoking - but at the cost of wrongly classifying 26% of the never-smokers.

(b) At the point where the probability of being a nonsmoker is 0.675, the model correctly classifies as ever-smokers 245 (78%) of the 314 children who had tried smoking - but wrongly classifies 37.3% of the never-smokers.

It must be recognised that whilst the logistic regression models presented here are those most successful at discriminating between never-smokers and ever-smokers, there may be other combinations of variables which would discriminate almost as well as do these models. Moreover, that the models are unsatisfactory for predicting smoking status on an individual basis has been emphasised above. Their usefulness, rather, lies in directing us towards that combination of factors which makes children in Primary 6 and Primary 7 most at risk of being 'ever-smokers' and, therefore, towards these variables which must be central to anti-smoking initiatives.

A third approach was taken to identify the factors associated with cigarette smoking. Within the group of 774 children who completed the questionnaire in both Primary 6 and Primary 7, I identified those who had never smoked by the time they participated in Primary 6 and divided these children into two groups: those who had still never smoked by the time they participated in Primary 7, and those who had tried smoking in the intervening year. In other words, I identified two categories of response in relation to trying smoking - the 'No - No' group, and the 'No - Yes' group. There were 454 children in the former, and 136 children in the latter [Table 4.56]. Having identified these two groups I then carried out X^2-tests to investigate which factors from the Primary 6-stage responses were associated with trying cigarettes during the following year.

The factors associated with trying smoking can again be discussed under the heading of 'Individual factors' and 'Social factors'.

Individual factors associated with trying smoking between Primary 6 and Primary 7

The children who tried smoking during the year between the two periods of data collection were more likely than those who did not try it, to have stated in Primary 6 that they intended to become regular smokers at some time in the future [Table 4.57, $p < 0.01$]. 'Triers' estimated a significantly higher prevalence of smoking among children of their age [Table 4.58, $p < 0.05$]; and were more able to name a second brand of cigarette [Table 4.59; $p = 0.01$], in Primary 6 than were the 'non-triers'.

Looking at the influence of social class factors, 'triers' were more likely to have reported their father's occupation as 'unemployed' or 'other' [Table 4.60; $p < 0.01$] than were 'non-triers'. The same association was found in relation to reports of mother's occupation ($p < 0.01$).

No additional factors or beliefs about the health effects of smoking were associated with trying a cigarette in the year between the two processes of data collection; nor were the variables of 'age' or 'sex'.

Social factors associated with trying smoking between Primary 6 and Primary 7

Children were significantly more likely to try smoking between Primary 6 and Primary 7 if in Primary 6 they had stated that their father smoked ($p < 0.001$); their mother smoked ($p < 0.001$); they had an older brother who smoked ($p < 0.001$); or that 'most' or 'some' of their friends smoked ($p < 0.001$) [Table 4.61].

'Triers' were not significantly more or less likely than 'non-triers' to perceive disapproval from parents or teachers who caught them smoking. In other words, those children who thought in Primary 6 that their mother, father or teachers would mind if they caught them smoking were no less likely to try smoking during the year than were children who did not perceive this disapproval. There was an association, however, between trying smoking and the perceived attitudes of friends.

'Non-triers' were significantly more likely than 'triers' to have stated in Primary 6 that their friends would think them stupid for smoking [Table 4.62; $p < 0.05$].

The variables shown from these X^2 tests to be significantly associated with trying smoking between Primary 6 and Primary 7 were entered into a logistic regression analysis.

The stepwise logistic regression used ~~any~~ only six of the variables to discriminate between 'triers' and 'non-triers'. After adjusting for all other significant factors, the following picture emerged:

1) A child with an *older brother who smokes* was 2.83 times as likely to try smoking during this period than was a child without.

2) A child whose *mother smokes* was 2.04 times as likely to try smoking than was a child whose mother is a nonsmoker.

3) A child who *intended to become a regular smoker* in the future was 1.80 times as likely to try smoking than was a child who intended never to be a smoker.

4) A child whose *father smokes* was 1.79 times as likely to try smoking than was a child whose father is a nonsmoker.

5) A child who thought that *most children of his age smoke cigarettes* was 1.63 times as likely to try smoking as was a child who thought that few or hardly any of them smoke.

Mother's occupation also helped to discriminate between 'triers' and 'non-triers', but the only occupational category which was significant on its own was the 'other' category.

The probability distributions, based on this model, for not trying smoking during the year are shown for 'triers' and 'non-triers' in Figure 4.5c. Identification of the group of children most at risk of trying cigarettes between Primary 6 and Primary 7 can be made by selecting the cut-off point at the x-axis which yields lowest levels of misclassification. The 'best' cut-off points are:

(a) At the point where the probability of not trying cigarettes is 0.508, the model correctly classifies as 'triers' 15 (11.9%) of the 126 children who did try smoking during the year - but wrongly classifies 1.4% of 'non-triers'.

(b) Where the probability of not trying cigarettes is 0.675, the model correctly classifies as 'triers' 59 (46.8%) of the 126 children who did try smoking during the year - but wrongly classifies 18% of 'non-triers'.

Once again, we must recognise that the model is relatively unsuccessful at discriminating between the group of children at high risk of smoking and those at low risk of doing so.

4.6(6) Smoking in the context of other health-related behaviours

Cigarette smoking behaviour was examined within a general lifestyle context in order to identify other behaviour patterns associated with smoking.

Firstly, the children's use of their spare time was investigated [Table 4.63 and 4.64]. Watching television was by far the most popular activity, but over 40% of the children also played sports with friends or read books or comics every day. Also, 60% of the Primary 7-stage children and 70% of those in Primary 6 went at least once a week to an organisation such as scouts or guides, or a sports club.

Of these spare time activities, the only one that was significantly associated with smoking behaviour (after correction for multiple tests) was going to 'a disco, cinema, café or other entertainment'. This association did not exist in Primary 6 but was very strong in Primary 7 [Table 4.65; $p < 0.001$]. Children who had at least tried a cigarette by Primary 7 were significantly more likely to go to some sort of public entertainment at least once a week than were those who had never smoked.

Cigarette smoking was also associated with some more familiar health-related behaviours - namely consumption of alcohol, nutritional behaviour and exercise.

82% of the Primary 6 respondents, and 80% of those in Primary 7 said that they had tasted alcohol. Among those who had never smoked a cigarette, however, the proportions were 79% and 74% respectively. On the chi-square test, there was a

statistically significant association between trying alcohol and trying smoking [Table 4.66; $p < 0.001$].

Among the Primary 6-stage children there was also a statistically significant association between cigarette smoking and the regularity of eating meals. The children were asked to indicate for breakfast, lunch and dinner whether they ate the meal 'usually', 'sometimes' or 'never'. There was no difference between never-smokers and ever-smokers in the regularity with which they ate lunch; but for both breakfast ($p < 0.05$) and dinner ($p < 0.01$), never smokers were more likely to report eating them 'usually', whereas ever smokers were more likely to report eating them 'sometimes' [Table 4.67]. Very few children said that they never ate the meals, but almost a fifth reported only sometimes having breakfast.

Finally, smoking behaviour was examined in relation to the amount of exercise taken by the children, and their enjoyment of this exercise. The overall pattern was one of extensive exercising by the children. In Primary 6, 96% of the respondents took part in sport at school and 60% said that they took at least four hours of heavy exercise out of school each week. The comparative figures for the Primary 7 respondents were 96% and 63% respectively [Tables 4.68 and 4.69]. There was no association between cigarette smoking behaviour and participation in school sport, but in Primary 7 there was an association between smoking and the amount of exercise taken outside the school, with never-smokers taking *less* exercise than those who had tried smoking ($p < 0.01$). This finding is contrary to these reported above associating smoking with an *unhealthful* lifestyle.

In general the children reported enjoying the exercise offered at school [Table 4.70]. However, in Primary 6 those who had at least tried smoking were significantly more likely ($p < 0.05$) than never-smokers, to state that they did *not* enjoy the exercise given in school. The same association was not observed at Primary 7-stage.

The overall pattern, then, was one which indicates that even at this young age, the experience of trying cigarette smoking may be entrenched within a network

of rather unhealthful behaviour patterns. The situation is not clearcut, however, and the finding that those who have tried smoking take more exercise outside school than do never-smokers is discordant with the overall pattern.

4.6(7) Changes from Primary 6 to Primary 7

Children in Primary 6 and Primary classes are often regarded as a single target group, with anti-smoking education being targeted broadly at 'upper primary school' children in the hope of reaching children throughout the 10-12 year age group. This broad targeting may reduce the effectiveness of messages if they are not appropriate to children in each stage. It is important, therefore, to look at differences between the stages in order to ascertain whether we need to develop anti-smoking programmes which are more specifically relevant to one stage or the other.

The group of children used in this analysis were those 774 children who completed the questionnaire in both years. McNemar's tests were employed to test the null hypotheses that there were no differences between Primary 6 and Primary 7 in the stated perceptions, attitudes and behaviour of these children.

Individual factors

Significantly more children in Primary 7 than in Primary 6 had ever smoked a cigarette [Table 4.71; $p < 0.001$], and there was also an increase in the proportion who were smoking on any regular basis [Table 4.14]. Interestingly, however, there was no significant change in the proportion of children intending to become regular smokers in the future [Table 4.72].

On examination of the children's knowledge about the health effects of smoking, there was found to be no significant change from Primary 6 to Primary 7 in the proportion of children knowing that smoking can result in the development of a cough, and can cause bronchitis and heart diseases. However, significantly

more children in Primary 7 did know that smokers are more likely to get out of breath ($p < 0.01$), and that smoking can cause lung cancer ($p < 0.05$) [Table 4.73].

There were many differences between Primary 6 and Primary 7 in the attitudes held by the children. Significantly more children were of the opinion that 'people of my age smoke to show-off' ($p < 0.001$) and that 'smoking makes you smelly' ($p < 0.01$) when they were in Primary 7 than when they were in Primary 6; and significantly fewer were of the opinion that 'smoking makes you look tough' ($p < 0.01$), 'smoking makes you feel grown-up' ($p < 0.05$), and 'smoking keeps you weight down' ($p < 0.05$). There were no significant changes in the proportion who thought that 'smoking is fun', 'smoking calms the nerves', 'smoking gives you confidence' or 'smoking is a waste of money' [Table 4.74].

The children's perceptions of themselves, and of smokers and nonsmokers, also changed significantly over the year. In Primary 7, the children perceived themselves as more fashionable and trendy ($p < 0.001$) and more grown-up ($p < 0.05$) than they did in Primary 6 [Table 4.75]. There were no changes in their image of themselves as clever, good at sports, shy or friendly.

Over the year, the image of smokers became less favourable whereas that of nonsmokers became more favourable. In Primary 7, the children perceived smokers as being less shy ($p < 0.001$) and less clever ($p < 0.05$) than they did in Primary 6; whereas they saw nonsmokers as more friendly ($p < 0.05$), more fashionable and trendy ($p < 0.001$), more clever ($p < 0.05$) and more grown-up ($p < 0.001$) [Tables 4.76 and 4.77].

Several of the reasons stated in answer to the open questions about smoking became statistically significantly more important from Primary 6 to Primary 7. For the following group of reasons this statistical significance in McNemar's tests was maintained at the 5% level after correction for multiple tests.

Reasons to do with the *image* of being a smoker were given by a greater proportion of children in Primary 7 than in Primary 6. This was so both as reasons

for *accepting* a cigarette for the first time ($p < 0.01$) and also as reasons for being a *regular* smokers ($p < 0.001$) [Table 4.78 and 4.79].

There were significant differences, too, in the proportion of children offering reasons to do with 'stupidity', or 'ignorance' and, conversely, with 'knowledge of the effects'. Stupidity and ignorance of the dangers of smoking were seen as *less* important reasons for accepting a cigarette to the children in Primary 7 than in Primary 6 [Table 4.80; $p < 0.01$]. On the other hand, 'knowing the dangers of smoking' became a significantly *more* important reason for refusing a cigarette [Table 4.81; $p < 0.01$].

The final significant change in the children's explanations of the smoking behaviour of others was in the proportion of children offering reasons to do with 'not liking it' as reasons for never smoking. This type of explanation was given by a greater proportion of Primary 7 children than of those in Primary 6 (table 4.108; $p < 0.01$).

On examination of the children's stated reasons for their *own* smoking intentions, there was only one significant change over the year. The children were significantly more likely to state in Primary 7 that they would never become smokers because they are 'sensible' or 'no daft' [Table 4.83; $p < 0.05$]. There was an indication that the children were more likely in Primary 7 to state that the smell of smoke would prevent them from becoming smokers. However, this difference became non-significant after correction for multiple tests.

Social factors

The children's social environment seemed to be relatively stable over the year. There were no differences between Primary 6 and Primary 7 in the proportions of children who thought that their friends would mind them smoking, that their father would mind them smoking, or that their mother would mind them smoking. However, significantly fewer children in Primary 7 than in Primary 6 thought that their teacher would mind [Table 4.84; $p < 0.001$]. It is important to

note that this is not part of a general reduction in perceived disapproval of smoking over the year, but rather, is a specific feeling concerning teachers only.

Significantly more of the children in Primary 7 than in Primary 6 stated that at least some of their friends were smokers [Table 4.85; $p < 0.001$], and there was also a higher perceived peer prevalence of smoking in Primary 7 [Table 4.86; $p < 0.05$]. These are unsurprising findings given that the proportion of smokers increases with age.

More unexpected was the finding that significantly more of the children in Primary 7 talked about cigarette smoking [Table 4.87]. In particular they were more likely to talk about smoking with their siblings ($p < 0.001$), but they were also significantly more likely to talk with their parents ($p < 0.01$) and their friends ($p < 0.01$).

4.7 DISCUSSION

The results presented in the previous section have implications for the design of health-promoting initiatives appropriate to children of upper primary school age. These implications can only truly be assessed, however, when the results are considered in the context of the present state of knowledge about children's health-related beliefs and behaviour (see section 4.2), and with an awareness of the limitations of the present study.

4.7(1) Limitations and implications of study methodology

The results of the study have little value unless they can be shown to be valid and reliable. As discussed in section 4.2(4) there is evidence that children do report their own smoking behaviour validly when recommended methods of data collection (as used in this study) are employed. This is reassuring, but still does not permit us to assume automatically that the results of the present study are valid. As there is no objective measure which is both feasible and suitable for assessing the validity of children's self-reported smoking behaviour (Gillies, 1985, 1986), I examined the *consistency* of response over several related questions within each year, and also looked at the consistency of reports of smoking behaviour over the two years of the study. Consistent responses do not prove that the children answered accurately, but it is unlikely that the children were consistently reporting something other than their cigarette smoking behaviour.

The following inconsistencies were found in the responses given by children in Primary 6 classes:

(a) Of the 692 children who said that they had never smoked a cigarette, 3 (0.4%) reported that they had smoked at least one cigarette since the previous day, and 1 (0.1%) said that he had smoked during the previous week. Also, 16 (2.3%) stated an age at which they had first tried smoking cigarettes.

(b) Of the 769 children who stated that they intended never to become a regular smoker, 2 (0.3%) provided a reason why they *did* intend to become a regular smoker.

(c) Of the 139 children who stated that they did intend to become a regular smoker, 108 (77.7%) provided reasons for their personal intention *not* to be a regular smoker.

Even fewer inconsistencies were found in the responses given by the children in Primary 7 classes:

(a) None of the 553 children who said that they had never smoked a cigarette indicated that they had smoked during the previous day or week, and only 9 (1.6%) stated an age at which they first had tried smoking.

(b) Of the 747 children who stated that they intended never to become a regular smoker, 3 (0.4%) provided a reason why they *did* intend to become a smoker.

(c) Of the 152 children who stated that they did intend to become a regular smoker, 107 (70.4%) provided reasons for their personal intention *not* to become a regular smoker.

Within the group of 774 children who participated in both years of the study, 18 (2.3%) reported in Primary 6 that they had tried smoking but in Primary 7 said that they had never smoked.

There was, therefore, a very high level of consistency in response overall, but considerable inconsistency on one set of connected questions: in both years of the survey, over 70% of the children who indicated on the closed question that they did intend to become a regular smoker in the future did not provide a reason for this intention on the corresponding open question. Rather, they switched category and stated a reason for their intention not to be a smoker.

Several possible explanations for this inconsistency may be suggested. For example, the children may not have noticed the option 'never' (which was presented last) in the question asking them for their intentions about smoking in the future; or they

may have misunderstood the structure of the open question requesting their reasons for their intentions; or they may have had difficulty in finding a reason for their intention to smoke and chosen the easier (or more acceptable) task of stating a reason for being a nonsmoker. The first suggested explanation for the inconsistency is unlikely because there was no indication from any other question that the option offered last was neglected by the children. Similarly, there was no other place on the questionnaire where the children did not understand the question structure and instructions for completion. Therefore, the most likely explanation of the three suggested is that the inconsistency reflects the relative difficulty for the children in stating reasons for becoming a smoker compared with stating reasons for not smoking.

The high degree of consistency of response to the questionnaire indicates that, with the exception of the questions relating to the children's intentions to smoke, the children's self-reports are valid and reliable.

The stratified random sampling method employed in this study allows extrapolation from the sample results to the study population as a whole. There was, however, some nonresponse which introduces the possibility of response bias in the results. There were two opportunities for nonresponse - firstly, the sampled schools could refuse to participate, and secondly, children within the participating schools could be absent from school on the day the study was carried out.

Of the head teachers in the 40 schools in the sample, 5 (12.5%) refused to participate. The nonparticipant schools were not apparently different from those which did take part, in terms of location, size, and type of catchment area. (Because of the small number of schools involved, chi-square tests could not appropriately be carried out). It is likely, therefore, that nonparticipation reflected the attitude of the head teacher rather than the characteristics of the school - and the reasons for nonparticipation given by the head teachers (4.4(7)) provide some support for this suggestion. If those schools which took part were those with head teachers favourable to health education and concerned about children's health, the results may represent a

rather more encouraging picture than would be seen from the study population as a whole.

As indicated in Table 4.1, the level of response within schools was generally very high and rates of absenteeism overall were no higher than the average. A recent study (Charlton & Blair, 1989), however, showed that children absent from school were significantly more likely to be regular smokers than were those present in school. The results of my study lend some support to this finding. Of those children who participated in the study in both Primary 6 and Primary 7, only 23% indicated that they were ever-smokers in Primary 6; whereas of the group who took part in Primary 6 but were not present in Primary 7, 31% were ever-smokers in Primary 6. Although the latter group clearly includes children who had moved to a different school as well as absentees, the differences in the proportions of the two groups who had at least tried smoking in Primary 6 is striking. A chi-square test was carried out to test whether this difference was statistically significant Before application of Yates' correction presence in school to complete the questionnaire in Primary 7 was found to be significantly associated with smoking status in Primary 6 ($p = 0.04$), but when Yates' correction was applied to the test, the association became just nonsignificant ($p = 0.05$). There is, therefore, no real indication that the children in my sample who were absent in Primary 7 were more likely than those present to have been ever-smokers in Primary 6. My results, however, do provide some evidence that children who smoke are more likely to be absent from school.

The sampling method employed in a study always has implications for the composition of the sample. In this study the sampling unit was the primary school, and a random sampling method was applied. It follows that the study sample of schools can be taken to be representative of the 'population' of primary schools within Greater Glasgow. The sample population of children cannot, however, be taken to be representative of all schoolchildren in Primary 6 and Primary 7 classes in Greater Glasgow because those schools with larger school rolls will inevitably have had greater

weight in the results. A sample wholly representative of the population of Greater Glasgow schoolchildren could have been achieved only by one of the following methods:

(a) Selecting a proportionate random sample of pupils from a composite pupil roll for Greater Glasgow. No such roll exists, however.

(b) Selecting a proportionate random sample from each school. This method has been shown to produce a lower level of response than that in which complete classes participate in the study (McKennell, 1980), and the validity of the results obtained has thus been questioned.

Moreover, important differences are known to exist between schools in the self-reported prevalence of children's smoking (Murray *et al*, 1984a; Charlton, Gillies & Ledwith, 1985), and such differences cannot be examined in studies sampling only small numbers from large schools.

Random sampling of as many schools as possible would be required for a truly accurate estimate of the prevalence of smoking within a particular region or city. In the study reported here, limitations of time and resources restricted the size of the school sample selected. Nevertheless, 35 primary schools were included, giving over 10% of the population of Primary 6- and Primary 7-stage pupils in Greater Glasgow. These schools appeared to be representative of the whole range of Glasgow primary schools, with respect to their type, their size and the amount of deprivation in their catchment area. However, it could be argued that more accurate estimates of prevalence could have been yielded by sampling larger numbers of schools.

The children's responses in the study may also have been affected by a 'Hawthorne' effect. In other words, participation in the study itself might have altered the children's behaviour, or the manner in which they reported their behaviour. Murray *et al* (1988) found the possible presence of a Hawthorne effect in the results of the MRC/Derbyshire Smoking Study, with the reported prevalence of smoking in schools which had participated in the study for five years being lower than in the comparison group of nonparticipant schools. The design of my study does not permit me to assess whether a Hawthorne effect has influenced the results. However, whilst a Hawthorne

effect can certainly bias prevalence estimates, it is unlikely to bias analyses relying on comparisons within the data set. This enables confidence in the accuracy of most of the study results.

The data collection methods employed in this study were, largely, well-tested and recommended approaches. As Newman and Gillies (1984) have discussed, self-completion questionnaires have several advantages as a means of data collection - they are reasonably objective, being of a fixed format; they permit the exploration of particular objectives and the testing of hypotheses; they collect data in a manner that is readily quantifiable; and they can be administered to large numbers of respondents concurrently, and relatively cheaply. However, they also have limitations - in particular they are restricting in the form and content of data which can be collected. When closed questions are employed, the options, or choices, given automatically introduce a bias into the results because respondents are limited to those possible answers listed on the questionnaire. Even the choice of questions to be included imposes a structure and may introduce bias. It follows that to a large extent the pattern of results reflects those factors thought to be important by the researchers. There is, therefore, a need to introduce more flexible methods of data collection to supplement the solid body of knowledge gathered through closed questions on questionnaires.

A novel feature of my study was the introduction of open questions to investigate children's perceptions of health and of smoking. These questions enabled the identification of those issues which the children themselves perceived to be important, as compared with those suggested as important by researchers. There are, however, several difficulties with the use of open questions. In particular, the children's responses would be affected by several factors other than their own cognitions. The length of response, for example, could be influenced by:

(a) The child's age

(b) The child's ability to write and express himself

(c) The length of time given for the child to respond

(d) The amount of space given for the response on the questionnaire. (The perceived size of this space would vary relative to the size of the child's handwriting.)

In this study, the effect of age was controlled to a certain extent by administering the questionnaire to children within specific year-groups at school, and the length of time to complete the open questions was held as constant as possible during the administration of the questionnaire. However, no account was taken of the child's IQ or ability to write, nor was there any means of accommodating a range of sizes of handwriting. It is therefore possible that the results over-represent the more able children in the schools, and may also be weighted by those with small handwriting. There is no means of assessing the extent of such effects or their impact.

A more important issue relating to the open questions concerns the problem of coding responses. The coding scheme was developed after data collection to accommodate the variety of responses given (see section 4.5(3)). However, coding of this type inevitably involves grouping together slightly different responses and imposing categories onto a data set which does not consist of homogeneous groups. Therefore, whilst the results presented from the open questions in this study certainly do represent the children's own unprompted responses, they also represent my classification of these responses. The general issue here was described in section 1.1(3), with respect to the fact that lay definitions of health are often professional interpretations of lay conceptualisations. In the present case, discussion of the children's perceptions of health and of smoking in reality represents my interpretation and classification of their conceptualisations.

Some reassurance can be gained from the fact that my classification was shown, on retest, to be reliable (see section 4.5(3)). The coding groups were discrete and appropriate to the responses, from a researcher's point of view. However, there is no means of assessing whether a child of upper primary school age would conceptualise the groupings in a similar manner.

A final factor which could have biased the responses of some children was the class teacher's presence during the process of data collection. In twelve schools the class teacher was unwilling to leave the class and so remained with us during the completion of the questionnaire. These teachers never played any active role in the administration of the questionnaire.

Having addressed some of the study limitations, and possible sources of response bias, it is important now to acknowledge the many strengths of the study.

The sample was large, yielding estimates of prevalence within narrow confidence intervals, and with a high level of power to detect an increase in the prevalence of smoking over the year of the survey (see section 4.4(7)).

There were low levels of nonresponse, with about 90% of the sample in each year completing the questionnaire.

The data were collected using the method of data collection thought to produce the most valid self-reports of smoking behaviour. This recommended approach, using self-completed questionnaires administered to complete classes in school, has been adopted in many studies of children and cigarette smoking. Its adoption in the study reported here, therefore, not only boosts confidence in the validity of my results, but also enables comparison with previous research.

Administration of the questionnaires was not left to the class teachers, but rather was carried out either by myself or by an associate researcher. This approach facilitated standardisation of the data collection process both in terms of the 'mechanics' of administering the questionnaire, and also in terms of the attitude and enthusiasm of the person introducing and explaining the study to the children. This is not to deny Campbell and Stanley's (1966) argument that variability in the execution of a procedure is preferable to exact replication on each occasion. In this study, the process of data collection could never be exactly identical in each school because it was inevitably affected by extraneous factors such as the room in which the study was carried out, time of day, incidents in the school, and so on. Administration of the questionnaire by only

one of two people did not result in exact replication on each occasion, it simply reduced the likely effect of 'interviewer bias'.

There was a very high standard of comprehension and completion of the questionnaire. Moreover, there was a high level of consistency of response (the exceptional case of the questions relating to children's own intentions to smoke was described above), and this indicates that the children's self-reports were valid and reliable.

4.7(2) Perceptions and beliefs about health and smoking

In carrying out the study I combined the conventional approach, of investigating issues shown to be important and relevant by previous research, with a 'child-centred' approach (as advocated by Peers & Christie, 1984) to investigate issues which the children themselves perceived to be important. Together these two approaches contributed to a comprehensive understanding of children's beliefs and perceptions about health and smoking.

The children's responses to those closed questions which investigated their health-related knowledge and beliefs indicated that they had a view of health very similar to that characterised by the medical model (1.1(1)). For example, over 90% of the children in both years of the study indicated that 'forgetting to brush your teeth' is bad for your health, and over 95% indicated that 'exercise' is good for your health. Similarly, there was extensive general awareness of the medical effects of smoking cigarettes. The vast majority of children indicated that they knew that smoking can cause lung cancer, heart disease and bronchitis, and can give you a cough.

Children who had tried cigarette smoking were equally as knowledgeable about the health effects as were those who had never smoked. This finding replicates that of several previous studies (Bewley & Bland, 1977; Ledwith & Osman, 1984; Morris *et al*, 1984; Murray *et al*, 1983b; Peers & Christie, 1984).

These results indicate that knowledge alone is insufficient to influence behaviour, and as discussed in Section 1.2(2) the link between the two is certainly tenuous. The social benefits of smoking may outweigh knowledge of the risks (see below and 4.7(3)).

Another explanation for the discrepancy between knowledge and behaviour is that although children may know about the dangers of smoking in general terms, they may not personalise the effects and make them relevant to themselves.

A third possibility is that children may simply attribute responsibility for many states of ill-health to smoking, in the absence of any true knowledge of an association. To assess whether this was happening, the statement 'smoking causes dandruff' was included within the list of suggested health effects of smoking listed in the study questionnaire If there was a tendency to attribute all health effects to smoking, then we would expect the respondents to have indicated that this statement was true. In fact only 4% of the children in each year did so.

There is some evidence from previous research that children may indicate that there is an association between smoking and a state of ill-health, although they do not understand what the state of ill-health actually is. Bewley *et al* (1974) found that fewer children thought that smoking was bad for health than thought that smoking can cause lung cancer, and Bland *et al* (1975) found that 11-13 year-old children had great difficulty in describing what is meant by lung cancer. These researchers have suggested that one reason for the lack of success of anti-smoking programmes is that the words used are not fully understood by the children.

The responses given to the open questions in my study do not support these findings - the children did understand that smoking is bad for health and were aware of a range of harmful effects of smoking on health The negative health effects of smoking were stated as the most important reasons for not being a smoker. Moreover, the fact that the general statement 'smoking is bad for your health' was the most frequently offered indicates that the children were not simply quoting names of health effects that they had 'learned' but indeed were expressing the effect most salient to them.

The specific health effects which were offered were most often of a negative health or disease type. Of particular concern to the children were the facts that people die from smoking and that smoking causes cancer, although unspecified lung disease was also cited as an effect of smoking. These points can be illustrated by some examples of reasons given to explain why a child of the respondent's age and sex would never become a regular smoker:

> *'It will ruin their life. They might even get cancer, they will have dirty lungs.'* [30528, girl aged 11]

> *'It is extremely bad - unhealthy and it can cause cancer and could kill you.'* [30427, girl aged 11]

These responses illustrate what was a general awareness among the children - that smoking is bad for health and also that it can cause certain specific states of disease or ill-health.

In the context of questions about smoking, therefore, the majority of children described health as a negative concept, with specific reference to medically diagnosed states. In contrast, the children's descriptions of what it feels like to be healthy rarely made reference to negative health or to specific states of ill-health. The prevailing concept of health was one of *happiness* - of having fun, or of feeling cheerful, good, fine, or bright. These are descriptions of a positive health state similar to that of *well-being*. However, they refer purely to a state of emotional well-being and do not include the idea of 'physical well-being' which is inherent to the WHO definition of health (see p 2).

This latter concept, of physical well-being, was described by the children in three different ways - as 'energy', as 'power', and as 'freshness'. The first was the most commonly offered description of health as a physical state. It included ideas of fitness and energy and was expressed in terms of feeling fit, active, energetic, and full of life. The second category of response describing health as physical well-being comprised ideas of the strength or capacity of the body. This concept of health involved a relative judgement about being able to do things 'better' or with more 'power' when one is healthy than when unhealthy. The final type of description concerning physical well-

being referred to health as a state of cleanliness or freshness, such that one feels 'as good as new', relaxed, refreshed and clean when healthy.

There was no evidence that the children had difficulty in expressing what it feels like to be healthy, and the size of the category of responses coded as 'other' reflects their diversity and imagination in response, as illustrated by the following:

> *'It feels like being someone who is a person who has got manners and other people aren't.'* [50302, boy aged 10]
>
> *'I feel like a cheeta and a monkey put together.'* [40502, boy aged 10]
>
> *'I feel that everything is OK and nothing could go wrong.'* [40305, girl aged 11]
>
> *'I feel confident and I can take everything in my stried.'* [30119, boy aged 12]
>
> *'You can concentrate on work in school ... you take an interest in sports and mainly everything else.'* [10445, boy aged 12]

The category of 'other' responses included many stating that it is *good* to be healthy, and many others stating *how* to keep healthy. The latter group of responses mainly referred to taking exercise and eating 'healthy' foods, although brushing teeth, not smoking and getting enough sleep were also mentioned.

Overwhelmingly, the children's perceptions of health were of a positive state of well-being. Indeed, the responses were overall very much in line with the WHO ideal of health, emphasising positive health, and demonstrating an awareness of physical, mental and (to a lesser extent) social facets. Although health was sometimes described in relation to doing things with friends, it was generally perceived as a condition of individuals.

Direct comparison of my results with Natapoff's (1978) description of children's views of health is not possible because different categorisations of response were employed in the two studies. However, some general similarities are worth noting. In Natapoff's study, the most frequently offered description of how it feels to be healthy was 'feeling good' (mentioned by 67% of respondents). It is not clear whether this category of response referred solely to a mental or emotional state (and is thus

comparable to the concept of 'happiness' in my study), or whether it also included concepts of feeling good physically. That it was an 'emotional' concept seems the more likely since several physical categories, including 'strong body', 'good condition' and 'exercise', were listed separately. If this is the case, the children in the American study placed more emphasis on emotional well-being, and less on physical well-being than did the Glasgow children participating in my study. Certainly, what is quite apparent is that in both cases the children predominantly defined health in a positive way.

The respondents in Natapoff's study also emphasised the ability to participate in desired activities as an important component of health. The idea of 'activity' was mentioned in my study by only 8% of children in Primary 6 and 7% of those in Primary 7, but was still the fourth largest category of response overall. The children did not mention routine tasks such as doing homework or household chores, but instead referred to enjoyable, or desired, activities such as running about, playing games and participating in sports:

> *'being able to play football is superb.'* [20709, boy aged 10]
>
> *'you can do all sorts of sports and join in the fun.'* [40131, boy aged 11]
>
> *'It's good to be healthy because you can play games, but if you weren't healthy you couldn't play games.'* [20516, boy aged 10]

The children's conceptualisations of health in these positive ways differ greatly from the concepts of health held by adult populations (see section 1.1(2)). Notably, unlike adults, the children did not see health in terms of being able to cope with the daily routine and with mundane tasks but rather were concerned with health as a requirement for being able to carry out *desired* activities. Moreover, the most common adult view of health - as the absence of illness - was almost absent among the children's descriptions.

Although the children did not view *health* in negative terms, they were explicitly aware of the negative health effects of *smoking* and, as described above, saw these negative health effects as the most important reasons for not smoking. A more detailed

examination of their perceptions of smoking and of smokers raises some interesting issues against this background.

The reasons offered by the respondents for the different categories of smoking behaviour provide some insight into children's explanations of why their peers do or do not become cigarette smokers. These explanations represent the children's beliefs about the development of smoking behaviour, and these beliefs in turn reflect their own personal experiences as well as knowledge acquired through more formal or impersonal processes. They must not be viewed as an accurate reflection of the factors which determine children's smoking behaviour, but rather as a child-centred view of the process - a reflection of those factors which the children perceived to be important.

Knowledge of the facts, of the dangers, or of the health effects of smoking was regarded by the children as being the most important reason for being a nonsmoker at this age (see above).

Also viewed as important were the valuing of health, and wanting to be healthy. These related concepts were frequently wrapped up in a statement about being good at sport, or of having an ambition (again, usually sport-orientated) which would be prevented by being a cigarette smoker.

Some less well-known health effects of smoking were also offered as reasons for not being a smoker. For example:

> *'becows you can get ades and can get soot on your fase.'* [10508, girl aged 10]
>
> *'he is alergected to them.'* [50124, boy aged 11]
>
> *'it is disgusting, it stunts you growth.'* [50418, girl aged 11]

The more immediately-apparent, short-term effects of smoking were mentioned by very few children (only 8 in Primary 6 and 17 in Primary 7). These effects have an obvious impact on appearance, and were more salient to the older group of children. The following are some examples:

> *'it is not very nice because you get yellow teeth and fingers and you have bad breath.'* [20133, girl aged 11]

'my friends would say I smell bad or point out nicotene stains on my teeth.' [40210, boy aged 10]

'it makes your teeth yellow and you would be ugly.' [50342, girl aged 11]

Reasons to do with the role of family or friends were not seen as important. Nor were factors such as the cost of cigarettes, or the smell. They were all mentioned - but only by a very small minority of respondents.

From the children's viewpoint, then, knowledge of the effects of smoking was an important factor in remaining a nonsmoker. It did not follow, however, that the converse situation - ignorance of the dangers of smoking - was thought to be an important reason for children *becoming* smokers. Instead, there were seen to be many positive reasons for smoking.

The predominant reason for trying the first cigarette was 'curiosity', or to see what it was like. The reasons offered for smoking thereafter were primarily to do with perceptions of the image of smokers, and of the role of friends both in setting an example themselves and also in an encouraging capacity. The following are some examples of responses illustrating these points:

'because they want to think they are cool and trendy.' [10415, boy aged 11]

'it makes me feel very grown up and I show off with it.' [30528, girl aged 11]

'I feel grown up and I think that everyone would like me for it.' [30427, girl aged 11]

'all my friends smoke and it makes me feel big.' [50418, girl aged 11]

'all of my other friends smoke and I want to copy them.' [30709, girl aged 11]

Overwhelmingly, the reasons suggested for being a regular smoker indicated that social benefits were thought to have an important role. As well as friends, 'other people' (the social norm) and parents were thought to be influential. It is problematic to classify the perceived influences on children's smoking behaviour into those originating from the social environment, and those specific to the individual child. It would be erroneous,

although tempting, to conclude that the principal factor perceived as *promoting* the uptake of smoking among children was *social* pressure, whereas that perceived as fundamental to *preventing* uptake was the *individual's* knowledge of the health effects. We do not know whether a child who smokes feels 'cool and trendy' because of an indication from others that he is, or whether he feels this simply because of his own perception of himself as a smoker. Moreover, individual knowledge and attitudes are largely reflective of environmental factors and experiences (1.2(1) - 1.2(3)).

Rather than trying to identify the relative contributions of individual and social factors, a more useful approach is to examine the implications for health education of the children's perceptions. For example, which perceptions are erroneous? Which can be corrected by the provision of information? What skills do children require to overcome the pro-smoking pressures they perceive? What do children value? Where does health sit within their value system? In what ways does health education need to be supplemented by other health promotion measures? These questions are addressed below.

The children's perceptions of themselves, of smokers and of nonsmokers indicate that the three categories of individual were perceived in quite distinct ways. The results of the present study replicate those from previous research, that self-image and smoker-image are much closer for smokers than nonsmokers (Bynner, 1969; Bland *et al*, 1975) and that smokers are perceived more negatively on most traits than are nonsmokers (Kannas, 1985). In my results, the exceptions to this latter point were the traits 'grown-up' and 'shy', with smokers being seen as more grown-up and less shy than nonsmokers. Without an understanding of children's value systems and of the relative 'appeal' of each trait, it is impossible to assess the significance of these exceptions to the generally less attractive image of smokers. Similarly, whilst *we* may presume it a positive thing to be regarded as 'clever at school', or 'fashionable and trendy', we cannot make the assumption that the children also perceived these as positive traits.

Children who had never smoked a cigarette perceived themselves and nonsmokers in an almost identical way. Although nonsmokers were perceived somewhat more

positively than 'self', and there were statistically significant differences on all traits except for 'shy', these differences were small in absolute terms and must have few implications for health education.

In contrast, children who had tried smoking at least once perceived themselves in a very different way from that in which they perceived smokers. It must, of course, be recognised that many of these 'ever-smokers' had only tried smoking once, and only 9% reported smoking on any regular basis. They, therefore, do not really constitute a group of smokers. However, Bland *et al* (1975) found that boys at the early stages of taking up smoking on a regular basis did not identify themselves as smokers and my results go some way towards substantiating this finding for children of both sexes.

The children's self-image is of interest also because of the suggested associations between a high self-esteem and the adoption of healthful lifestyles (1.4(4)). Dielman *et al* (1984) found that adolescents with a high self-esteem exhibited less unhealthful behaviour than did those with a low self-esteem. The aspects of self-esteem most salient to the adoption of cigarette smoking were 'happiness' and 'self-confidence'. In my study no validated measure of self-esteem was employed, so comparison of my results with those of Dielman *et al* (1984) is not possible. It is merely worth observing that my results indicate no significant differences in the self-images of ever-smokers and never-smokers in either Primary 6 or Primary 7 classes.

Regis and Balding (1988) have suggested that as well as self-esteem being a determinant of behaviour change, behaviour will also affect self-esteem. Indeed, it is logical that self-esteem should be viewed as having a behavioural component (see 1.4(4)). Those children in my sample who progress to become regular smokers in the future may, therefore, exhibit a corresponding shift in their self-esteem and thereafter possess a self-image distinct from that of nonsmokers. At the time of the study, however, no such distinction was apparent.

Botvin, Botvin & Baker (1983) have examined the extent to which developmental changes occur during adolescence with respect to the image of smokers. They found that with increasing age, respondents' showed a shift towards a more positive image of

smoking, unrelated to the smoking status of their friends. The results of my study indicate a contrary trend: the Primary 7 respondents' images of smokers were overall *less* positive than those of the Primary 6 respondents. The children in my sample were younger than those studied by Botvin *et al* and their outlook was generally pro-health and anti-smoking. Changes in this outlook may occur when they progress to secondary school. Indeed, previous research has shown the step into secondary school to have a strong influence on children's health-related beliefs, attitudes and behaviour, and to be associated with a 'quantum leap' in the prevalence of smoking (Ledwith & Osman 1984).

The negative perceptions of smoking and smokers found in this study may simply reflect the young age of respondents - and therefore be a real representation of the images held by 10-12 year old children. However, we must consider the possibility that these are not the respondents' real perceptions. The children may not have described themselves as they really saw themselves, but rather as they would like to be, or to appear. It is possible, also, that the images they gave of smokers and nonsmokers were those that they assumed would be acceptable to adults. The resultant images may in part, therefore, simply reflect the general attitude of society towards smoking - an attitude acquired by the children through processes of socialisation.

There are, clearly, several possible interpretations of the data and certainly the two years of the study are insufficient for the detection of any effect of age on the children's perceptions. We can, however, confidently use the data in analyses relying on comparisons within the data set and we cannot help but be struck by the much more positive image held of nonsmokers than of smokers.

4.7(3) Cigarette smoking - knowledge, attitudes and behaviour

We have already examined the children's knowledge of the health effects of smoking, noting that almost all children had a high level of awareness of these effects. This was expressed both in their responses to the closed questions examining knowledge of specific health effects, and in their replies to the open questions. The health effects of smoking were perceived by the respondents as the most important reasons for not taking up the habit. This effect of knowledge was not, however, apparent in practice - analysis of the responses indicated that those children who did try cigarette smoking were not significantly less knowledgeable about the health effects than were never-smokers.

The questions investigating attitudes towards smoking yielded a greater diversity of response. Predominantly the children agreed that 'smoking is a waste of money', 'smoking makes you smelly', and that 'people of my age smoke to show off', and disagreed that 'smoking is fun'. There were, however, some differences in the opinions expressed by boys and girls, and by ever-smokers and never-smokers.

Girls in Primary 6 classes were significantly more likely than boys to agree that 'smoking makes you smelly' and that 'smoking makes you feel grown-up'; and in Primary 7, girls were less likely than boys to agree that 'smoking calms your nerves'. There is no consistency in these differences which would enable us to conclude that either boys or girls were generally more favourably disposed to cigarette smoking. Differences in the attitudes of boys and girls have been found in several other regional studies with children of this age group (Charlton, 1984; Gillies, 1986; Glasgow 2000, 1985), but again no clear pattern is present. Dobbs and Marsh (1985) found very little difference in the attitudes towards smoking expressed by boys and girls in secondary schools throughout the country. It may be, therefore, that boys' and girls' opinions of smoking become more similar as the children grow older.

The results of the present survey also indicated that the children's opinions of smoking became more negative as they progressed from Primary 6 to Primary 7. This finding is concordant with that showing that opinions of smokers also became more

negative over this period (4.7(2)), but contradicts results of previous studies indicating that children generally become more positively disposed to smoking as they grow older (Bynner, 1969; Charlton, 1984; Dobbs & Marsh, 1985; Gillies, 1986). Given that the weight of evidence thus indicates the holding of *more* favourable opinions of smoking with increasing age, some possible explanations for the contrary trend observed in the present study should be explored.

The studies referred to above describe a change in children's attitudes over a longer period of time than was observed in this study. It is therefore possible that my results merely represent a fluctuation within a general trend of increasingly favourable attitudes towards smoking. However, the previous studies which involved children within the 10-12 year age group still observed attitude changes during this age span which were concordant with the overall pattern. To determine whether the results of my study merely represent a fluctuation in the general pattern rather than a complete deviation from it would require involving my respondents in the completion of further questionnaires as they progress through secondary school.

It is unlikely that my results are an artifact of the methodology of my study, because the approach adopted replicated that of much previous research. However, the questionnaire used in my study was, obviously, unique in composition and also considerably longer than that usually employed with primary school children The possibility must, therefore, be recognised that some of the questions earlier in the questionnaire may have affected the children's responses to the statements assessing their opinions of smoking.

The responses to my study may also be a reflection of the situation more generally in the adult population where smoking is now seen as less socially acceptable than it was in the past. In a social climate becoming more negatively disposed to cigarette smoking, children may be less likely to admit to holding positive opinions of the behaviour, just as they may be less likely to admit to smoking cigarettes themselves. In other words, the responses to the attitude questions may reflect prevailing social attitudes rather than those held by the children themselves.

Turning now to the opinions held by ever-smokers and never-smokers, some striking differences are apparent. Children who had tried smoking held considerably more favourable attitudes towards the behaviour than did never-smokers. Ever-smokers were more likely to think that 'smoking calms your nerves', 'smoking is fun', 'smoking makes you feel grown-up' and 'smoking gives you confidence', and were less likely to agree that 'smoking makes you smelly'. These findings have all been observed in many other studies (Bewley, Bland & Harris, 1974; Boyle, 1968; Bynner, 1970; Charlton, 1984; Cartwright & Thomson, 1960; Dobbs & Marsh, 1983, 1985; Gillies, 1986; McGuffin, 1982; Thomson *et al*, 1988).

Children who had at least tried smoking cigarettes were less likely to hold unfavourable attitudes and more likely to hold favourable attitudes towards smoking than were never-smokers. As described above, this finding is supported by much previous research. Also, Murray *et al* (1983b) found that children who held positive attitudes towards smoking were more likely to become regular smokers in the future. The picture is not straightforward, however, as illustrated by the results of the longitudinal studies carried out in Derbyshire (Bewley *et al*, 1974) and in Bristol (McNeill *et al*, 1988). Bewley *et al* found that the general attitudes of smokers to smoking were negative and confused, and McNeill *et al* found that no attitudinal factors were significantly associated with the uptake of smoking.

These longitudinal studies alert us to the fact that although research has consistently shown children's opinions of smoking to be significantly associated with their current smoking status, these opinions have not regularly been found to be predictive of future smoking behaviour. The results of the present study lend support to this conclusion. Ever-smokers in Primary 6 classes were significantly more likely than never-smokers to be of the opinion that 'smoking is fun'and that 'smoking makes you feel grown-up', and less likely to think that 'smoking makes you smelly'. In Primary 7 classes they were significantly more likely to be of the opinion that 'smoking is fun', 'smoking calms your nerves', 'smoking makes you feel grown-up', and 'smoking gives

you confidence'. However, none of these opinions was significantly associated with trying smoking for the first time between Primary 6 and Primary 7.

In addition to indicating extensive knowledge of the health effects of smoking together with negative opinions of the smoking habit, the children reported very low levels of smoking behaviour. Of the Primary 6 children, 24% had tried smoking but only 0.6% indicated that they still smoked sometimes and 0.2% that they smoked one cigarette or more each week. In Primary 7, 38.4% had tried smoking at some time, 2.5% still smoked on occasion and only 1.8% smoked regularly. Boys tended to smoke more heavily than girls, but the numbers are too small to test for significant differences.

The prevalence of ever-smoking observed in this study is in line with the findings of Charlton, Gillies and Ledwith (1985) who reported that a quarter of children in three regions (the North of England, Sheffield, and the East of Scotland) had tried cigarette smoking by the time they were 10-11 years old. It is also slightly higher than that found in the Scottish component of the WHO cross-national survey (Currie *et al*, 1987): by age 11, 21% of boys and 11% of girls in this sample from Lothian had tried smoking, and only 0.1% of the boys and 0.05% of the girls were smoking one or more cigarettes each week. Other studies have, however, observed considerably higher levels of smoking. For example, Wilcox and Gillies (1984), in a survey of over 4000 9-16 year olds in Sheffield, found that 77% of boys and 73% of girls had experimented with cigarettes by the time they were 11 years old. The prevalence of smoking reported in the present study is also considerably lower than that reported previously among children in upper primary school classes in Glasgow. The Glasgow 2000 Baseline survey (Glasgow 2000, 1985), carried out in 1984 with children in Primary 7 classes, found that only 54% of boys and 59% of girls had never smoked a cigarette. Moreover, 9% of the boys and 4% of the girls reported smoking regularly (at least one cigarette each week). The most recent national survey (Goddard & Ikin, 1987) found levels of smoking slightly lower than these among children aged 11-12 years old in first year classes in secondary schools throughout Scotland. In this sample, 66% of boys and 71% of girls stated that

they had never smoked a cigarette, and 2% and 3% respectively reported smoking on a regular basis.

Given the discrepancy between the results of the present study and the findings both of the previous study involving the same population, and of the most recent national survey, some possible explanations should be explored for the low prevalence reported here. The finding may of course represent the real situation now among schoolchildren in Glasgow. However, it may also be a consequence of other factors, either directly or indirectly related to the study.

Comparability of results of different studies is always affected by inevitable differences in the processes of data collection. The studies referred to above were all carried out by self-completion questionnaires admninistered in school, so are similiar to that extent. However, there are several factors may have caused dissimilarity between the results of these studies:

1) The length and content of the questionnaire in which the questions relating to smoking behaviour are set may influence the reponses given to these questions. The questionnaire employed in the study described here was considerably longer than usually used with primary school children, of broader content and more taxing to complete than purely closed question questionnaires. The possibility that these factors may have affected reponse must, therefore, be recognised.

2) The questionnaire employed in this study was confidential, but could not be anonymous because of the need to match responses over the two years of the study. The questionnaire used in the Glasgow 2000 Baseline survey did not need to meet this requirement for matching of responses, and so was anonymous as well as confidential. This may account for some of the difference in the prevalence levels reported in these two surveys.

3) The national surveys select a sample of pupils out of each class and request them to complete the questionnaire in a separate room. This process of 'marking out' the respondents may also influence the responses given in studies, but is more likely to result in under-reporting than in exaggerated responses. (McKennell, 1980).

4) A child's age and his school year have been shown to have independent influences on cigarette smoking behaviour (Dobbs & Marsh, 1983, 1985; Goddard & Ikin, 1987; Ledwith & Osman, 1984; Nelson *et al*, 1985) However, a third temporal factor that is likely to have an influence is the time of year of the study - a substantial number of children are likely to try smoking cigarettes during the school summer holidays, for example, although their age (in years) may not change during this period. There is no evidence concerning the amount of influence that the time of year has on study results, and an investigation of this issue is recommended (6.4). Furthermore, as the present study was carried out towards the end of the school year, the effect of time of year would be such as to increase the prevalence of smoking among these school year groups.

5) Children may be increasingly reluctant to report that they smoke cigarettes, because of the increasingly negative attitudes towards the behaviour which exist in society as a whole. Changing background norms may have affected the responses to several of the questions on the questionnaire (this point was made above in relation to responses to the questions investigating attitudes towards smoking). These changes also make comparisons between studies carried out at different times, and therefore in different prevailing social climates, problematical.

There are many other factors which may affect reported smoking behaviour, and which will vary between different studies. We therefore have to be wary about assuming that the large observed reduction in both the incidence and the prevalence of smoking among upper primary school children in Glasgow represents a real trend. The results are, nevertheless, very heartening.

Several factors were found to be associated with the experience of having tried smoking a cigarette, and also with the experience of first trying smoking between Primary 6 and Primary 7 stage. These factors are summarised in Figures 4.7a - 4.7c, and we are reminded once again that the significant variables vary according to the model used, and there is no really clear pattern of influence. However, some general points can be made from the results of the logistic regression analyses.

The importance of example in the home is quite clear. In both Primary 6 and Primary 7, children who had ever smoked were significantly more likely to have at least one parent who smokes, and an older brother who smokes. Ever-smokers in Primary 6 were also more likely to have an older sister who smokes. Having a mother, father, or older brother who smokes was also a risk factor for trying smoking for the first time between Primary 6 and Primary 7. The importance of parental and sibling example has been obserevd in many previous studies (Bewley & Bland, 1977; Bewley *et al*, 1974; Cartwright & Thomson, 1960; Dobbs & Marsh, 1985; Murray & McReynolds, 1987; Murray *et al*, 1983a, 1983b; Nelson *et al*, 1988). However, these associations were all observed on univariate analyses, and two studies using multivariate methods (Ledwith & Osman, 1984; McNeill *et al*, 1988) found no association between children's smoking and

	Primary 6		Primary 7	
	Univariate analysis	Multivariate analysis	Univariate analysis	Multivariate analysis
'Smoking is fun'	✓	✓	✓	
'Smoking makes you smelly'	✓ (inv)			
'Smoking calms your nerves'	✓		✓	✓
'Smoking makes you feel grown-up'			✓	✓
'Smoking gives you confidence'			✓	
'Cigarette adverts should be banned'	✓ (inv)		✓ (inv)	
Able to name 1 brand of cigarette			✓	
Able to name 2 brands of cigarette			✓	✓
'Most children of my age smoke cigarettes'	✓		✓	✓
Intention to become a regular smoker	✓	✓	✓	✓

✓ indicates a positive association significant at 5% level
(inv) indicates that factor is inversely related to smoking

Figure 4.7a Individual factors associated with having tried cigarette smoking

	Primary 6		Primary 7	
	Univariate analysis	Multivariate analysis	Univariate analysis	Multivariate analysis
Father smokes	✓		✓	
Mother smokes			✓	
Older brother smokes	✓	✓	✓	✓
Older sister smokes	✓	✓	✓	
Friends smoke	✓	✓	✓	✓
Father would mind			✓ (inv)	
Mother would mind			✓ (inv)	✓ (inv)
Teacher would mind			✓ (inv)	
Friends would mind	✓ (inv)	✓ (inv)	✓ (inv)	
Frequently go to disco/ cinema etc			✓	
Has drunk alcohol	✓		✓	
Eats meals regularly	✓ (inv)			
Exercises frequently			✓	
Talks with parents about smoking			✓	✓ (inv)

✓ indicates an association significant at 5% level
(inv) indicates that the factor is inversely related to smoking

Figure 4.7b Social factors associated with having tried cigarette smoking

	Univariate analysis	Multivariate analysis
Father smokes	✓	✓
Mother smokes	✓	✓
Older brother smokes	✓	✓
Friends smoke	✓ (inv)	
Father unemployed	✓	
Mother unemployed	✓	
Able to name 2 brands of cigarette	✓	
Intends to become a regular smoker	✓	✓
'Most children of my age smoke cigarettes'	✓	✓

✓ indicates a positive association present at the 5% level
(inv) indicates that the factor is inversely related with trying smoking

Figure 4.7c Factors present in Primary 6 which were associated with trying smoking during the following year

parental behaviour. The association with parental smoking behaviour on the logistic regression analysis in this study is therefore an important finding.

Whilst parental example was strongly associated, parental attitudes (as perceived by the respondents) showed little association with the children's smoking behaviour. Only in relation to the mother's attitude to smoking was there any effect. Ever-smokers in Primary 7 were only 0.7 times as likely as never-smokers to think that their mother would mind them smoking. There was no such effect in Primary 6. nor in relation to trying smoking in the year between the two data collection times.

Parents may, however, be able to influence their children's behaviour by discussing issues related to cigarette smoking with them. Significantly, ever-smokers in Primary 7 were only 0.69 times as likely as never-smokers to talk to their parents about smoking sometimes, and only 0.54 times as likely to do so frequently.

Example rather than attitude had the stronger association with children's smoking in relation also to the role of friends. Ever-smokers in Primary 6 were 2.5 times as likely to have at least some friends who smoked than were never-smokers, and in Primary 7 ever-smokers were 1.6 times as likely to have some friends who smoke. Having friends who smoke may largely be a consequence of experiencing smoking oneself: although it was associated on the univariate analysis with trying smoking between Primary 6 and Primary 7, this association disappeared on the multivariate analysis. The attitudes of friends were associated with ever-smoking only among the children in Primary 6 classes. In this group, those who thought that their friends would think them 'just like them' were 1.4 times as likely to have tried smoking, and those who thought their friends would think them 'stupid' were 0.5 times as likely, to have tried smoking as were children who thought that their friends 'wouldn't bother at all' if they saw them smoking.

The role of friends in relation to children's smoking behaviour has been examined in several previous studies. There are findings which demonstrate that friends have an important part to play in a child's first experience of smoking (Goddard & Ikin, 1987), through being present on the occasion and providing cigarettes. The reponses to

the open questions in the present study indicate that this is a role of which the children themselves are very aware. Previous studies (McNeill *et al*, 1988; Murray & McReynolds, 1987; Nelson *et al*, 1985) have also found the attitudes of friends to be associated with children's smoking. Only for the Primary 6 group was there evidence of this in the present study.

Although some of the opinions of cigarette smoking were associated which having ever smoked in the two year groups, there was no consistent pattern. Moreover, no opinion was associated with trying smoking during the year of the study. No attempt was made in this study to combine responses to individual attitude statements into a composite grouping indicating some overall opinion of smoking. This approach was taken by Murray *et al* (1983b), who then found that children with favourable attitudes to smoking were more likely to increase their smoking behaviour over the following four years. However, combination of statements in any meaningful way is necessarily a complex task, and the resulting 'grouped attitudes' difficult to interpret.

The factor most consistently strongly associated with cigarette smoking in this study was 'intention to smoke'. Children in Primary 6 who intended to become regular smokers at some point in the future were 2.1 times more likely to have at least tried smoking than were those who intended never to become regular smokers. In Primary 7, those who intended to become smokers were 2.0 times as likely to have ever-smoked than were those who intended never to be smokers. Moreover, children who tried smoking for the first time between Primary 6 and Primary 7 were 1.8 times more likely to intend to become smokers than were 'non-triers'. It is clear, therefore, that interventions must be directed at reducing the number of children who intend to become smokers. This conclusion is supported by the results of the many other studies which have observed an association between intention to smoke and both smoking status (Bewley *et al*, 1974; Cartwright & Thomson, 1960; Dobbs & Marsh, 1983; Gillies, 1986; Goddard & Ikin, 1987) and uptake of smoking (McNeill, *et al*, 1988).

Some interesting points can be made about influences on children's cigarette smoking behaviour in terms of the processes of influence on health-related behaviour

examined in section 1.2. There is clearly an important role for the agents of socialisation, and in particular the primary socialisation influences from the family, in influencing the smoking behaviour of children. This influence seems to be exerted primarily through behavioural example, possibly through the mechanism of modelling, although the child's perception of 'acceptable' or 'normal' behaviour will also be influenced by example in the home.

The study results provide some indications that the media may also have an important role to play. Whilst this role was not thoroughly investigated in the study, the findings that smokers were more able to name brands of cigarette, and also overestimated the prevalence of smoking among children their age indicate that images perpetuated through the media may have had greater impact on this group of children.

The pattern of children's smoking behaviour, and factors associated with it, provide clear indications of dissonance between affective, cognitive and behavioural elements. The assumption that knowledge will lead to a change in attitude, and that this will in turn result in behavioural change is again shown to be an oversimplification. Knowledge, attitudes and behaviour do not seem to be related in any logical way. Instead, there are forces predisposing to smoking that overcome pressures towards objectively 'rational' behaviour. The attitudinal models of behaviour change provide little explanation of the patterns observed here.

Behaviourist approaches, on the other hand, may have rather more to offer. The children's responses to the open questions in the questionnaire indicated that they perceive many positive advantages in smoking - notably a more appealing, or attractive image. The benefits of such an image must largely come from other people in the form of reinforcement. Given the predominantly negative perception of smoking and smokers held by children, it is likely that such reinforcement will come largely from friends who are also smokers, and certainly we know that those who had smoked cigarettes themselves were significantly more likely to have friends who were also smokers.

No behaviour pattern can be understood without reference to associated factors and other related behaviours. Cigarette smoking among children of upper primary

school age is enmeshed within a pattern of rather unhealthful behaviours, and supported by a social environment in which smoking is common and widely accepted.

CHAPTER 5: STUDY OF HEALTH EDUCATION PRACTICE IN UPPER PRIMARY SCHOOLS

5.1 INTRODUCTION

The investigations described in the previous two chapters have gone a long way towards answering the research questions central to the project as a whole (2.1). The purpose of the study described in the present chapter is to provide a bridge between these two, by taking an approach which not only permits integration of some of their research findings but which also addresses some of the issues raised by these findings.

In this study, the pattern of health education teaching in Primary 6 and Primary 7 classes in a sample of primary schools in Greater Glasgow is examined in a detailed way, employing open research techniques to complement the postal survey approach taken in Study 1. In addition, the factors which influence the use of specific materials for health education are examined, and an investigation is made of teachers' beliefs about their role for children's health education.

This study, thus, assesses the *process* of health education in primary schools in Glasgow. Its design also permits the picture of health education practice to be related to the pattern of beliefs, perceptions and behaviours observed among the 10-12 year old children who participated in Study 2.

5.2 BACKGROUND

The reader is referred back to the review of literature which was presented in Chapter 3, as this is directly relevant to the study described in the present chapter. It can, however, usefully be supplemented in the light of some of the results from the postal survey.

Responses to the survey indicated that the 'Jimmy on the Road to Super Health' project was present in at least 84% of primary schools in Greater Glasgow, and was used by 44% of upper primary school teachers. Given this popularity, it is important to examine the 'Jimmy' package in more detail.

There is only one, recently published, paper (Deans *et al*, 1988) which reports on the effectiveness of 'Jimmy on the Road to Super Health'. In a case-control study, 'Jimmy on the Road to Super Health' was taught to pupils in Primary 7 classes of all the five 'feeder' primary schools of one secondary school in Glasgow. The pupils in Primary 7 classes in the five feeder primaries of another secondary school were not taught 'Jimmy', but simply received their school's standard health education teaching. Data relating to the children's smoking behaviour were collected immediately pre- and post-intervention, and also at points one and two years later.

The results of this study indicated that 'Jimmy' was effective in preventing, or at least delaying, the onset of cigarette smoking among children. At post-test (immediately after receiving the 'Jimmy' package), and after adjustment for sex and parental smoking, the relative risk for nonsmokers starting smoking in the Control group was 1.98. The effect became even greater over time. One year after the project was taught, nonsmokers in the Control group were 2.06 times as likely as those in the Intervention group to have started smoking; and after two years they were 2.41 times as likely to have started smoking. The project thus did seem to be effective in preventing the onset of smoking among those who had never smoked prior to the intervention. It did not, however, change the behaviour of those who were already smoking on a regular or occasional basis.

As recognised by the authors, the design of this study does not permit certainty that the observed effects were a result of the 'Jimmy' package: any of the other extraneous factors known to be associated with cigarette smoking among children (see section 4.2), or some combination of these, could have accounted for the differential uptake of smoking observed. However, as I have argued in section 1.6, rigorous experimental conditions can rarely be achieved in health education research, nor are they always desirable.

Although the results of Deans *et al* (1988) cannot be taken as proof of the effectiveness of the 'Jimmy on the Road to Super Health' package, they do have the advantage of comparing the effects of this package not with a situation where all health education is absent, but rather with the more realistic comparison of 'health teaching in whatever form' carried out in primary schools. The results of this study, whilst clearly hard to interpret and not directly transferable to all situations, are strong and significant, and very encouraging given the extensive use of the 'Jimmy' package in primary schools throughout Greater Glasgow.

5.3 AIMS AND OBJECTIVES

This study is relevant to the first research focus of the project (to assess school-based health education according to educational criteria and also with respect to the aims of health promotion), and to the third focus of the project (to examine the roles of the school and the home for health education). It complements Study 1 (see Chapter 3) and is linked to Study 2 (see Chapter 4).

The aims of this study were threefold: to describe the health education being taught in Primary 6 and Primary 7 classes; to evaluate the process of carrying out this health education; and to identify and describe how teachers see their role in health education. These aims correspond with project objectives A1, A2 and C1 (p 75).

The specific objectives of the study were:

1) To describe the teaching of health education in a sample of upper primary schools within Greater Glasgow, with respect to:
   (a) the *amount* of health education being taught
   (b) the teaching *methods* employed
   (c) the health education *materials* used
   (d) the health-related *topics* covered
   (e) the *input* from people other than the class teacher
2) To describe teachers' perceptions of the relative importance of various health-related topics and of health education in general; and to relate this to their health education practice.
3) To investigate the use of specific health education materials, with respect to:
   (a) *why* teachers use them
   (b) their perceived *advantages* and *disadvantages*
   (c) the *manner* in which they are used
4) To relate this picture to pupils' self-reports of their health-related knowledge, attitudes and behaviour.

5.4 METHODS

5.4(1) Study population

The study population comprised the class teachers of the children participating in Study 2 (see Chapter 4) - in other words, teachers of Primary 6 classes in 1987 and teachers of Primary 7 classes in 1988 in the 35 participating schools.

There was no sampling of teachers within schools. Rather, all of the relevant teachers were requested to take part. This yielded a study population of one or two teachers per school (depending on school size) for both years of the study.

5.4(2) Data collection

A self-completion questionnaire (Appendix 3.1) was again used for collecting the data. Its structure was developed from that successfully used in the postal survey (Appendix 1.2), but it was a rather longer and more complex instrument than that used previously.

I handed the questionnaire to the class teachers when I arrived in school to carry out the study with the children in their class. Those teachers who had not planned any other activity were requested to complete the questionnaire while the children's study was being carried out. If this was not possible, they were requested to post the questionnaire to me in the stamped, addressed envelope provided.

In some cases the relevant class teachers were absent from school. If this absence was only very short-term, the questionnaire was left with the head teacher who was requested to pass it on. If, on the other hand, the class teacher was to be absent for a longer period, I gave the questionnaire to the temporary replacement teacher (where one had been appointed) or to the head teacher, if either of these had sufficient information to complete it. If he did not, I asked if the information could be requested from the absent teacher. Where this was infeasible or inappropriate, I had to accept blank or incomplete questionnaires.

5.4(3) Timetable

The timetable for this study was determined by the timing of Study 3 - the children's questionnaire study. The questionnaires were distributed in accordance with the dates of each school visit to collect data from the children. In 1987, these visits took place from March 30th to May 18th; and in 1988, from April 18th to May 10th.

If a teacher had not returned his questionnaire within a month of the visit to his school, a telephone call was made to the head teacher asking him to encourage the class teacher(s) to complete and return the questionnaire. A second follow-up 'phone call was made if it had still not been returned within the following week, unless there was a clear indication that the class teacher(s) refused to participate.

The timing of the study, with data being collected near the start of the school summer term, had implications for the content of the questionnaire. Unlike the situation in Study 1 (Chapter 3), the questionnaires were not completed near the end of the school year and there were thus still several weeks over which the teachers could teach health education. The questionnaire therefore had to investigate *intentions* to teach health education as well as the health education *already practised* earlier in the school year. I have no means of assessing whether the teachers acted upon their intentions during the remaining weeks of the school year, but some reassurance can be gained from the report of Deans *et al* (1985) who found that stated intentions *were* realised substantially in practice.

5.4(3) Questionnaire design

The questionnaire used for this study (Appendix 3.1) was in two parts. The first requested information about the health education already taught during the year, by the class teacher and by others, and about that planned for the remainder of the year. It also included a short section investigating the teachers' attitudes to health education. This part of the questionnaire was largely of a closed-question format but it included several questions which asked teachers to provide their own account without restriction

to categories. These open questions referred to the materials used for health education, and to any health education input from people other than the class teacher.

The second section of the questionnaire investigated in detail the use of specific materials for health education. The questions in this section were largely open in format and asked the teachers to describe:

why they used (or planned to use) a particular material

what they perceived to be its advantages and its disadvantages

and, for those who did not (or did not plan to) follow the course completely,

the particular components of the material which they used (or planned to use).

The final question in this section asked the teachers to indicate, on a five-point scale from 'very enthusiastic' to 'very unenthusiastic', how receptive their pupils had been to the use of that particular material.

Some personal details were also recorded on the questionnaire. As was the case on the children's questionnaire, the respondents were asked to give their name so that responses could be matched over the two years. The school in which they worked and the stage of pupils taught were also recorded for purposes of matching with the children's responses over the two years. In addition, the teachers were asked to indicate their age and their own smoking status, so that an assessment could be made of the impact of these variables on the health education being taught.

5.4(5) Response

The distribution of response is shown in Table 5.1. Of the 54 Primary 6-stage teachers working in the 35 participating schools, 40 (74%) returned completed questionnaires. In contrast, of the 50 Primary 7-stage teachers, 49 (90%) returned completed questionnaires. Overall, 82% of the study population returned a questionnaire.

There is no clear reason for the difference in the response-rates of the Primary 6 and the Primary 7 teachers since the approach employed was identical in both cases. However, one *possible* explanation is that, being aware of the rather disappointing response-rate from the Primary 6-stage teachers, I placed more emphasis on the

importance of returning the questionnaires when repeating the study with Primary 7 respondents. Another possibility is that there was no change in *my* approach but that the teachers of Primary 7 classes *themselves* placed more importance on health education and on relevant research than did teachers of Primary 6 classes. These two possible explanations are clearly not mutually exclusive.

As shown in Table 5.1, there were eight schools from which there was no response at all in 1987, and another two schools from which only one of the two relevant class teachers returned a questionnaire. The following year there was at least one completed questionnaire returned from all but one of the participating schools. Four other schools where there were two teachers of Primary 7 classes, returned only one questionnaire. The overall response rate was 87%.

5.5 ANALYSIS

The data were analysed quantitatively using SPSSx, the Statistical Package for the Social Sciences (Nie, 1983). In addition, a more qualitative approach was taken to analyse the open questions. This involved the identification of common 'themes' in the responses, and can thus be seen as a form of content analysis.

In accordance with the aims of the study, the purpose of the analysis was mainly *descriptive*. Therefore, no statistical tests were carried out and the quantitative analysis simply involved the production of frequencies and crosstabulations of variables.

Most of the variables employed in the analysis were derived directly from the study questionnaire (Appendix 3.1). The index of multiple deprivation (as described in section 3.5(3)) was again used as a measure of the level of deprivation in the postal district of the school's location.

Some of the children's reports of their health-related attitudes and behaviour were employed in making assessments of the *effects* of the health education being taught. This involved matching-up data from the children's questionnaire (Appendix 2.1), with that collected for the present study. This matching was carried out at the level of the school.

5.6 RESULTS

The results of this study are presented in the following sections:

(1) Sample characteristics

(2) Health education taught and planned

(3) Attitudes to cigarette smoking prevention

(4) Perceptions of priorities

(5) Use of specific materials

(6) Effect on pupils' attitudes and behaviour

5.6(1) Sample characteristics

Looking first at the distribution of response in terms of the level of deprivation in the areas where the schools were located, the most poorly represented group was that of Primary 6-stage teachers in schools located in deprivation level 3. The general pattern, however, was one of response from schools throughout the range of deprivation [Table 5.1].

The prevalence of cigarette smoking (regular or occasional) among the respondents was lower than that within the population at large around the time of the study. Of the Primary 6-stage teachers, 26% were smokers; and of the Primary 7-stage teachers 20% were smokers [Table 5.2]. For comparison, in Great Britain in 1985, 34% of women and 35% of men smoked cigarettes (Wald *et al*, 1988). The prevalence of smoking in Scotland has been found to be higher than that in Great Britain as a whole: in 1984, 35% of women and 43% of men in Scotland smoked cigarettes (Mackie, 1988). These general comparisons do not take account of social class differences in the prevalence of smoking. However, no comparison of the teachers with a comparable social class group was possible, given that these primary school teachers were predominantly women and social class categorisations rarely take account of women's occupations.

The study respondents were also of varied ages [Table 5.2]. Of the Primary 6-stage teachers, 26% were less than 35 years old and 28% were over 50 years old. The Primary 7-stage teachers were generally rather younger, with 27% being under 35 years old and only 18% being over 50 years old.

5.6(2) Health education taught and planned

Only one of the Primary 6-stage and one of the Primary 7-stage teachers said that they had not taught any health education so far during the school year [Table 5.3]. Therefore, over 97% of teachers in both samples had taught some health education by the time of the survey (after Easter) in the then current school year.

The single Primary 6-stage teacher who had not taught any health education was the teaching head of a small rural primary school. The Primary 7-stage teacher who had not taught any health education was a newly-arrived supply teacher who intended to teach some during the remaining weeks of the school year but did not know what, if any, health education had been taught by the absent class teacher.

In answer to the question concerning their plans to teach health education in the remainder of the school year, 82% of the Primary 6 and 67% of the Primary 7 teachers said that they did intend to teach some health education during this time [Table 5.4]. Notably, both of the teachers who had not already taught some health education planned to do so in the remaining weeks of the school term [Table 5.5].

The teachers were asked to indicate which of the following methods they had used in their health education teaching:

(1) Incidental teaching

(2) Centre-of-interest/project work

(3) School's own scheme

(4) Other

'Incidental' teaching was the most commonly-used teaching method, being employed by over 65% of the teachers in both years who had taught some health education. The centre-of-interest approach, or project work, was the next most popular

method. It was used by 40% of the teachers who had taught some health education in Primary 6 and 26% of those in Primary 7. The Primary 7 teachers were next most likely to have used their school's own scheme (21% cited this method) whereas those in Primary 6 were more likely to have used some 'other' approach. Of the 10 Primary 6 teachers who used 'another method', 7 favoured television and in particular the series 'Good Health' (see section 3.2(2)). Only 3 of the Primary 7-stage teachers reported using television. The other teachers said that they integrated their health education teaching into other projects (such as within the Physical Education or Religious Education curriculum) [Table 5.6].

Teachers generally used only one method for teaching health education, and this was the case for both samples. Overall only 18 teachers reported using two methods, and 3 teachers used three [Table 5.7].

The pattern was very similar in relation to the health education planned for the remainder of the school year. Again the most popular approach was incidental teaching. Project work was the next most favoured by the Primary 6-stage teachers, whereas those of Primary 7 classes were more likely to plan to use their school's own scheme [Table 5.8]. Only 7 of the Primary 6-stage teachers and 6 of the Primary 7-stage teachers intended to use more than one method for teaching health education [Table 5.9].

Those who had taught some health education were asked to record all the materials they had used in their teaching. Those who planned to teach some in the remainder of the school year were asked to record those that they intended to use. The questions were of an open format, and all of the stated materials were coded.

The responses indicated that 'books' and 'health leaflets' were the most commonly-used types of materials followed by 'TV' and 'other visuals' such as posters or charts [Table 5.10]. Only 18% reported using a specific project-based *material*, although 33% of all the respondents had reported using a project *method* for teaching health education [Table 5.6].

A majority of teachers in both years reported using materials which were grouped together as 'other'. Responses in this category included the use of newspaper

and magazine articles, the teachers' own knowledge, videos, scientific experiments or workcards, and talks and discussions.

Often the teachers had employed more than one type of material, and the Primary 7-stage teachers had in general made use of a greater number of materials than had the Primary 6-stage teachers. There is no indication that the teachers working in the more deprived areas were any more restricted in opportunity to combine a range of materials in their health education teaching than were those working in less deprived locations [Table 5.11].

The pattern of health education planned for the remainder of the school year was very similar, with 'books' and 'TV' being the materials most frequently stated. There were, however, plans to make greater use of 'topic- or project-based materials' than had been the case for the health education taught earlier in the year. 18% of the Primary 6 teachers and 30% of the Primary 7 teachers intended to use project *materials*. 36% and 20% respectively had stated that they intended to use a project-based *method* for their remaining health education teaching [Table 5.8].

Many of the teachers planned to employ more than one method in their health education teaching. This was the case for 52% of those Primary 6 teachers, and for 75% of those Primary 7 teachers planning to teach health education [Table 5.15].

A list of thirteen health-related topics was presented in the questionnaire and those who had taught some health education were asked to indicate which of these topics they had covered [Table 5.14]. The only topics that had been covered by more than half of the Primary 6-stage teachers were 'Food and Nutrition' (84.6%), 'Hygiene and Cleanliness' (82.0%), 'Smoking' (64.1%), 'General Body Knowledge' (61.5%), and 'Exercise and Rest' (61.5%). The least widely covered topics were 'Sex Education' (12.8%), 'Drugs' (20.5%), and 'Growth and Development' (23.1%).

The health education taught by the Primary 7-stage teachers covered a wider range of issues than was the case in Primary 6. All of the listed topics with the exception of 'Hygiene and Cleanliness' and 'Food and Nutrition' were taught by a greater proportion of Primary 7- than of Primary 6-stage teachers. Among the teachers

of Primary 7-stage classes the most widely covered topics were 'Smoking' (76.7%), 'Hygiene and Cleanliness' (74.4%), and 'Food and Nutrition' (72.1%). Again by far the least widely covered topic was 'Sex Education' (14.0%).

When asked about the content of the health education planned for the remainder of the school year, teachers again indicated many of the same 'popular' topics [Table 5.15]. In both samples 'Hygiene and Cleanliness' was the topic planned by the greatest number of teachers for inclusion. There was also an indication that many teachers intended to cover issues relating to the out-of-doors in the summer months, as topics such as 'Pollution of the Environment', 'Safety and the Out-of-Doors', and 'Exercise and Rest' had a prominent place in health education planned for the remainder of the school year.

Although the class teacher is the person most likely to carry out health education with primary school pupils, there are clearly also opportunities for input from other people. The class teachers were asked to indicate whether anyone other than themselves had been, or would be, involved in teaching health education to their pupils; and if so, to provide details of this 'external' input.

Of the 40 Primary 6 teachers, 13 (32.5%) said that some other person(s) had been involved with health education [Table 5.16]. Those most commonly involved were health visitors (who made some input to 7 of the classes) and dentists or dental hygienists (cited by 5 teachers). The health visitors usually dealt with issues relating to puberty and to 'general body knowledge', although in some cases they also covered drug-related issues including alcohol and cigarette smoking. Other people who were involved in health education in a smaller number of cases were the police (mainly for road safety), ambulancemen, the school nurse or doctor, and physical education specialists, such as swimming instructors.

Of the 45 Primary 7 teachers, 24 (53.5%) said that some other person(s) had been involved with health education. For this year group those most commonly involved were nurses (cited by 8 teachers), other school staff (in 7 cases), and dental professionals (in 6 cases). Health visitors were less frequently involved than for Primary 6-stage children,

and among this group the school nurse was the main 'external' source of education about growth and development, changes at puberty, and menstruation. Use of other school staff was quite prevalent at Primary 7-stage, but was completely absent in Primary 6 classes. Often the staff involved (usually home economics teachers, guidance teachers or physical education teachers) were from the secondary school to which the children would go the following year, and their involvement thus provided an opportunity for contact between primary and secondary schools.

The final aspect of the health education which I investigated was the amount of time spent teaching about health issues. The teachers were asked to make three different estimations - of the amount of time they had already spent on health education, of the amount of time they planned to spend during the remaining weeks of the school year, and of the amount of time spent by people other than themselves during the school year.

Looking first at the amount of time already spent by the class teachers [Table 5.17], it is striking that although more than two-thirds of the school year had passed by the time of the study, only 7 of the Primary 6 teachers and 8 of the Primary 7 teachers stated that they had spent more than ten hours during that time teaching health education. All of other other teachers had taught ten hous or less - no more than the equivalent of one hour's teaching about health each fortnight for one term, plus a small amount of incidental teaching.

Given the limited amount of the school year remaining after the survey was carried out, the profile of time planned for health education was more encouraging [Table 5.18]. This was the case in particular for the Primary 6-stage teachers. It is likely that a certain amount of time in the summer term is reserved for the less academic aspects of the curriculum, and health education neatly fits this bill.

Table 5.19 shows that input from people other than the class teacher occupied very little time. In all but 4 cases in each year 'external' input was estimated as amounting to less than five hours throughout the whole school year.

I calculated a measure of the total amount of time spent on health education, by combining the teachers' three estimations of time spent, time planned, and amount of input from other people to health education throughout the year. Because each of these estimates was made on a grouped scale, in calculating the composite measure I took the maximum number of hours in each time category as the value of the estimate. The profile of the total number of hours spent throughout the year therefore represents the most favourable picture [Table 5.20].

Only 6 of the 40 Primary 6 teachers and 6 of the 45 Primary 7 teachers stated that their pupils received more than 25 hours of health education throughout the whole school year. The schools in which these teachers worked were not concentrated in the least- or most-deprived areas of the city, but rather represented a variety of socio-economic settings, as measured by the index of multiple deprivation. Two schools were represented in this 'high time input' group in both the Primary 6 and the Primary 7 sample.

There was also a group of schools in which only a very small amount of time was spent on health education throughout the year. This was particularly the case for the Primary 7 children. Of the 45 Primary 7-stage teachers, seven (17.5%) estimated that no more than five hours were spent on health education with their pupils during the whole school year. The effect of this minimal input on the pupils' health-related attitudes and behaviour, in comparison with the more extensive amount of health education described above, is examined in section 5.6(6).

5.6(3) Attitudes to cigarette smoking prevention

A series of statements was presented together with a five-point scale to assess teachers' opinions about approaches to the prevention of cigarette smoking among children.

The first statement was:

'I feel that the prevention of cigarette smoking should be left to parents'.

The teachers in both years overwhelmingly did not agree that parents should have the sole responsibility, with 74% of the Primary 6 teachers and 62% of the Primary 7 teachers indicating that they either disagreed or strongly disagreed with this statement [Table 5.21].

However, they did not feel that total responsibility should lie with the school either. 52.5% of the Primary 6 teachers and 49% of those in Primary 7 disagreed or disagreed strongly with the statement *'I feel that schools should take the responsiblity for preventing children smoking'* [Table 5.22]. Comparing this table with the previous one there is an indication, however, that if faced with placing responsibility exclusively either with parents or with the school, more teachers would be of the opinion that schools should take the responsibility for preventing children smoking.

The third statement - *'I feel that schools and parents should cooperate in the prevention of smoking among children'* - presented an intermediate situation, but also one which would involve additional active participation on the part of both schools and parents. Nevertheless, 95% and 87% of the Primary 6 and Primary 7 teachers respectively either agreed or strongly agreed with this statement [Table 5.23]. Such cooperation would have many implications for the design and implementation of health education packages, and for the structure of school health education more generally.

There was very strong feeling among teachers also that *'adults should set an example to children by not smoking themselves'*, with 92% of the Primary 6 teachers and 89% of the Primary 7 teachers agreeing or strongly agreeing with this statement [Table 5.24]. None disagreed with this statement, and although the samples are too small to

carry out a test of association, the teachers' attitudes seem to be independent of their own smoking behaviour [Table 5.25].

The teachers' opinions were, lastly, sought about the statement: *'I feel that the government should take more action to prevent people smoking'*. The majority of teachers in both years agreed or agreed strongly with this statement [Table 5.26]. However, unlike the preceding statements there was also a sizeable group of teachers (26% of the Primary 6 sample, and 38% of the Primary 7 sample) who either felt neutral or went against the majority opinion and disagreed with this.

5.6(4) Perceptions of priorities

Moving on from the general, impersonal, situation, I investigated the teachers' attitudes towards health education in their own school. This involved comparing their perceptions of actual practice with their views of the ideal situation.

60% of the Primary 6 teachers and 68% of the Primary 7 teachers stated that health education was regarded as quite or very important in their school [Table 5.27]; but 90% and 100% respectively stated that they thought it *should* be treated as important [Table 5.28]. A similar picture emerged in relation to the more specific issue of anti-smoking education, although the strength of feeling about its importance was not as strong as for health education in general [Tables 5.29 & 5.30]. Of the Primary 6-stage teachers, 38% perceived anti-smoking education as being at least quite important in their schools, whereas 75% thought that it *should* be treated as important. The corresponding figures for the Primary 7-stage teachers were 38% and 73% respectively. Therefore, whatever the teachers' practice in relation to health education, their attitudes certainly seemed to be favourable. There is an issue, however, concerning the discrepancy between the perceived reality and the ideal situation. Given the relative autonomy of the class teacher in a primary school, it is important to consider the factors which might prevent these favourable attitudes to health education from being translated into practice. This issue is examined in section 6.1.

I was interested also in examining the teachers' perceptions of the most important health education topics for children in Primary 6- and Primary 7-stage classes. Thirteen topics were listed, and the teachers asked to rank them in order of importance, with the most important topic being allocated to rank 1, and the least important to rank 13. I then calculated the mean rank allocated to each, and ordered the topics according to this value.

Overall, the Primary 6-stage teachers perceived 'Food and Nutrition', and 'Hygiene and Cleanliness' as clearly the most important topics; and viewed 'Pollution of the Environment' and 'Sex Education' as the least important [Table 5.31]. There was some variation between the teachers' rankings according to the level of deprivation in the area where they were working. In particular, the teachers in the least deprived areas (level 1) ranked 'Exercise and Rest' only in tenth place, whereas those within the most deprived quintile ranked this topic third. There was no clear pattern, however, and the numbers are so small that there is inevitably a high level of error associated with the grouped estimates.

The Primary 7-stage teachers' rankings of the topics produced a very similar pattern [Table 5.32]. These teachers ranked 'Hygiene and Cleanliness' as the most important topic, followed by 'Food and Nutrition'; and again 'Sex Education' and 'Pollution of the Environment' were regarded as the least important. There was much greater variation in the rankings of this group according to the level of deprivation in the area of their school than was the case for the Primary 6-stage teachers. For example, the teachers working in deprivation level 1 ranked 'Safety and the Out-of-Doors' as the most important topic whereas those in level 5 ranked this in eleventh place. A general trend was that those in the most deprived areas placed more importance on specific addictive and drug-related activities - whereas in the sample as a whole, 'Smoking' was ranked sixth, and 'Drugs' was ranked eleventh, the teachers working in the most deprived areas ranked these topics in first and fourth position respectively.

5.6(5) Use of specific materials

In the second section of the questionnaire, teachers were asked whether during the then current school year they had used or intended to use any of the health education materials listed below:

a) 'Education for Healthy Living' (Strathclyde Regional Council Department of Education, 1980)

b) Schools Council Materials (Schools Council, 1977)

c) 'Jimmy on the Road to Super Health' (Calman & Carmichael, 1981)

d) 'Good Health' (Jolly & Goodsell, 1976)

e) 'Billy Hughes' (included within (a))

Twenty-one out of the 40 Primary 6 teachers (52.5%) and 15 out of the 45 Primary 7 teachers (33.3%) indicated that they had used at least one of these materials. Three of these teachers had taught Primary 6 and Primary 7 consecutively and recorded using the same material in each year. Also, three of the Primary 6 teachers and two of the Primary 7 teachers recorded using more than one of the listed materials during the year.

Of the listed materials, 'Jimmy on the Road to Super Health' was the most commonly used by respondents, with 8 teachers in each year reporting using it. 'Good Health' was used by 5 Primary 6- and 3 Primary 7-stage teachers; 'Education for Healthy Living' by 3 Primary 6- and 4 Primary 7-stage teachers; the 'Billy Hughes' component, by 2 teachers in each year; and the Schools Council materials by 2 Primary 6 teachers but none of the Primary 7 teachers.

'Jimmy on the Road to Super Health' showed a pattern of much more recent uptake of use than did the other materials. Of the 16 teachers who had used it, 6 had done so for the first time, and another 5 had been using it for only two years. The longest period for which it had been used was four years (by 3 Primary 6 teachers). 'Good Health' had been used by teachers who answered this question for 1-8 years, and 'Education for Healthy Living' for 2-7 years.

None of the Primary 7 teachers had ever received training in the use of any of the materials listed and only one of the Primary 6 respondents had received training - in use of the Schools Council material.

The teachers gave a wide range of reasons for choosing to use the materials listed. These reasons varied from 'because it was available in schools', or because it was the one that the school or the local authority recommended, to more positive grounds based on the quality, range, structure, format and presentation of the contents and ideas; the suitability of the topics for the children; the children's enjoyment of, or interest in, the material and their ability to understand it.

The reasons most frequently given for using 'Jimmy on the Road to Super Health', referred to the quality and content of the material. These responses included:

> *'The presentation to the children is good. The notes and layout are simple and informative'*
>
> (Primary 6 teacher, 150101)

> *'I liked the way each system of the body is covered. It just appeals to me, the content and way it is set out. Gives good follow-up ideas and lists of resources etc'*
>
> (Primary 7 teacher, 110401)

Three teachers specifically mentioned the structure of the project, which was regarded as appropriate and detailed; and another three mentioned the range of topics covered. There were some other reasons offered only once, for example: *'It seemed a new approach'* (Primary 6 teacher, 210601), and *'It was recommended by a friend'* (Primary 7 teacher, 150303). Only two teachers said that they used 'Jimmy on the Road to Super Health' because it was available.

The reasons given for using 'Jimmy on the Road to Super Health' were very different from those given for using the other materials. Overwhelmingly the reasons for using 'Good Health' or 'Education for Healthy Living' referred to the fact that it was school policy to use these.

When asked to list the advantages and disadvantages of the materials used, very few teachers could list any *disadvantages*. In the case of 'Jimmy', the main disadvantage given was that there was simply too much material, or too many topics, to cover in the

time available. In contrast, 'Education for Healthy Living' was seen as too simple or, as one Primary 7 teacher (220502) put it, *'a bit "lightweight" '*.

Many more teachers listed *advantages* of the materials they used. Looking first at the case of 'Jimmy on the Road to Super Health', the main advantages were again seen to be the structure of the approach and the quality of the programme content. The following responses provide an illustration:

> *'Liked the ideas given and the fact that most of the information needed is together in booklet form'*
>
> (Primary 7 teacher, 150303).
>
> *'It combines health education with a good vehicle for the teaching of language'*
>
> (Primary 6 teacher, 150101).
>
> *'Good ideas, set out clearly concisely'*
>
> (Primary 6 teacher, 120101).
>
> *'Because all information is given it allows more time to develop theme'*
>
> (Primary 6 teacher, 150801).

'Jimmy on the Road to Super Health' was seen as being aimed at the right level for upper primary school children, so that the children related to it and were interested.

The teachers who used the other materials also saw many advantages in them. In particular, 'Good Health' was thought to be appealing to the children both in the visual presentation and in the language used. It covers a range of topics in a sequenced manner and this was seen as an advantage not only because it enabled discussion of a wide variety of issues but also because it permitted teachers to be selective and flexible in what they taught.

This issue of flexibility appears to be a very important one. Only 17 of the 36 respondents (47%) said that they followed the course completely as it was written. The majority of teachers used parts of the programmes, extracting the bits that they wanted and combining them with other materials from their own resources; or omitting parts

for reasons of time or suitability; or supplementing the programmes either with components of their own or with other materials where they felt there were omissions (for example, the reproductive system is not covered in 'Jimmy on the Road to Super Health'. This practice corroborates the evidence from earlier questions, that the teachers display versatility, flexibility and imagination in using a wide variety of materials and resources in their teaching of health education to Primary 6 and Primary 7.

The final question in this section of the questionnaire asked the respondents to indicate how receptive their pupils had been to the health education taught. This was measured on a five-point scale from 'very enthusiastic' to 'very unenthusiastic'. Overall, 12 teachers (33.3%) said that their pupils were very enthusiastic; 6 (16.7%) said that the pupils were neither enthusiastic nor unenthusiastic; and 4 teachers did not indicate a general level of enthusiasm but said that the response depended on the child. The children in Primary 7 were perceived as being considerably more enthusiastic than were those in Primary 6. All of the teachers who used the Schools Council materials and all who used Billy Hughes, stated that their pupils were very enthusiastic, but this refers to a total of only six classes. The perceived level of pupil enthusiasm did not differ in relation to the three more widely used materials.

5.6(6) Effect on pupils' attitudes and behaviour

The teachers' descriptions of the health education given to the pupils in their class cannot easily be related to the attitudes and behaviour of these pupils, as reported in Study 2. There are four main reasons for this:

1) The creation of some index of the amount of health education taught requires weighting of the different aspects of health education teaching, and inevitably involves loss of information. Without such an index, comparisons can only be made on specific aspects of health education practice, and so can yield only an incomplete picture.

2) The children's responses could be analysed only at the level of the school or of the individual, because no information was collected about the particular class that a child was in at school. Therefore, in schools with more than one class at Primary 6 or

Primary 7 stage, there was no means of matching the responses from pupils to those of their relevant class teacher. Comparisons could only be made at the level of the school.

3) Even in those cases where we could have certainty that the child was a pupil of a particular class teacher, we could not be sure if he was present in class on the occasions when the health education teaching took place.

4) Attempts to relate changes in children's attitudes and behaviour over the year of the study to the health education received during this period would involve combining the reports of teaching practice planned for the remainder of the year in Primary 6 with reports of health education already taught in Primary 7. The problems of matching pupils and classes are thus compounded in this case with the difficulty of matching the teachers who taught a particular class over the two years.

In recognition of these difficulties, only a simple and 'messy' attempt was made to relate teaching practice to pupils' smoking-related beliefs and behaviours. The approach taken involved ranking schools in terms of the amount of time spent and planned for health education, the teaching method adopted, use of specific materials, and teachers' perceptions of the 'ideal' priority for anti-smoking education in primary schools. Ranking was possible only for those 26 schools from which questionnaires were returned in both years of the study, as the resulting rank order took into account practice by teachers of both Primary 6 and Primary 7 classes. From these 26 school ranks, the five schools in which health education teaching was most extensive and the five where it was practised least, were identified. These schools thus represent the top and bottom quintiles of health education teaching in the sampled schools.

No attempt was made to match the schools in these groups according to any possible confounding factors such as social class composition, school size, other school health policies, and so on. Therefore, the comparisons made here simply reflect the situation in practice and do not form any scientific or epidemiologically-sound evaluation of health education in these schools. It should be noted, however, that the top and the bottom quintile both comprised schools located throughout the range of deprivation (as indicated by the multiple deprivation index), although the bottom

quintile contained more schools in the least deprived areas of the city. The compositions of the groups, according to the deprivation scores of the schools' locations, were as follows:

Top quintile of health education teaching: two schools in multiple deprivation group 5, one school in deprivation group 3, and two schools in deprivation group 2.

Bottom quintile of health education teaching: one school in each of deprivation group 4. group 3 and group 2, and two schools in deprivation group 1.

Four variables were selected from the data set of children's responses gathered in Study 2. These were:

(a) *Children's own smoking behaviour* This is the key variable of interest.

(b) *Children's intentions to become regular smokers* This is the factor most consistently associated with smoking status in Primary 6 and Primary 7, and with first trying cigarette smoking in the intervening period.

(c) *Children's reports of the smoking behaviour of their friends* This variable provides an indication of the social environment selected by the children.

(d) *Children's perceptions of their teacher's attitude towards smoking* This variable is a means of validating whether the ranking of health education that was carried out for this analysis reflects the situation perceived by the pupils.

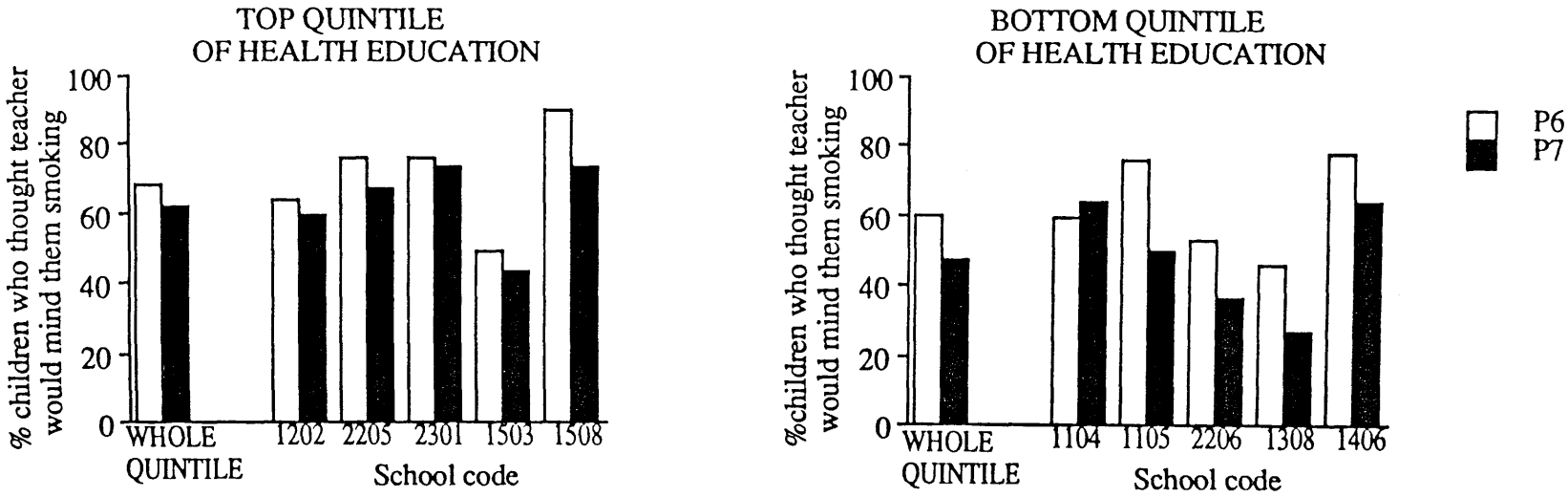
The schools in the top and bottom quintiles of health education teaching were compared on these variables, and the resulting pictures are presented in Figures 5.1a - 5.1d.

The initially most striking impression given by these Figures is of the extensive variability within the groups, and the relative lack of differentiation between groups, with respect to these four variables. Only in relation to the children's perceptions of their teacher's attitude towards smoking is there any clear difference between the groups: children in schools in the top quintile were, overall, more likely to think that their teacher would mind them smoking than were those who had received the lowest levels of health education (Figure 5.1a). In Primary 6, children in schools in the top quintile were

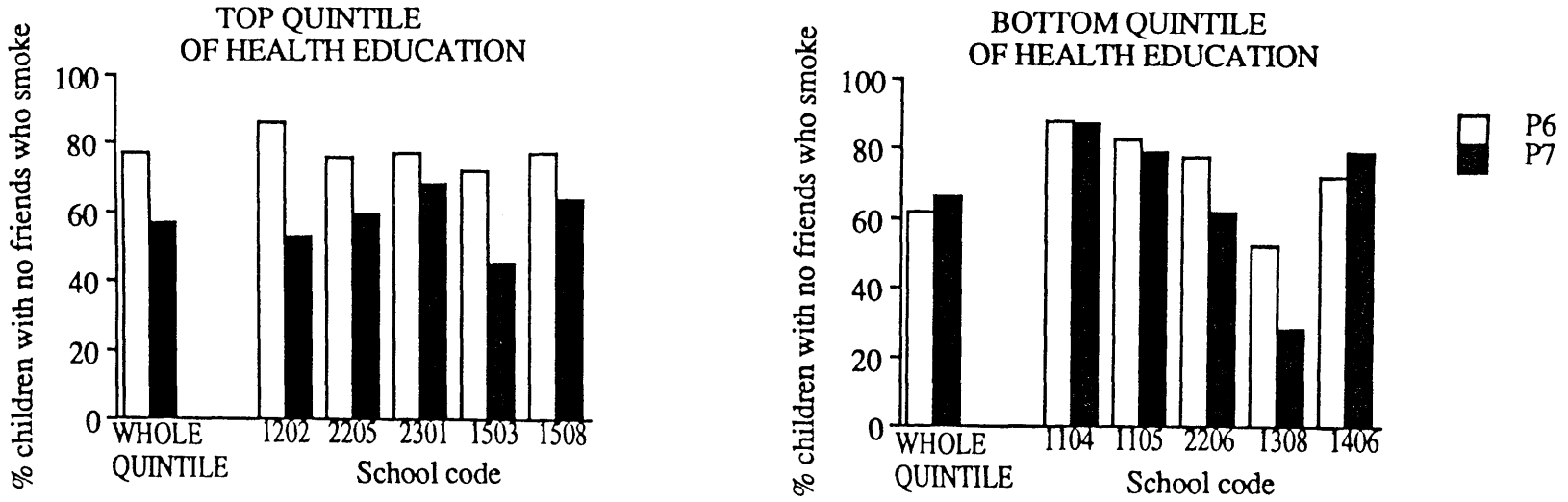
also more likely to state that they had no friends who smoke than were those in the other group. By Primary 7 this was no longer the case (Figure 5.1b).

Health education teaching showed a positive effect neither in relation to the pupils' own smoking behaviour, nor their intentions to become regular smokers. Indeed, compared with pupils in the schools teaching a lot of health education, *higher* proportions of children attending schools in the *bottom* quintile of health education teaching had never smoked a cigarette and intended never to become regular smokers (Figures 5.1c - 5.1d).

The comparisons made between the top and bottom quintiles as a whole are weighted by the results from large individual schools, which may be atypical, within each group. No conclusions can be drawn about the effectiveness of health education. Rather, the most striking impression from these results is of the extensive variability existing between schools even after controlling for health education input.

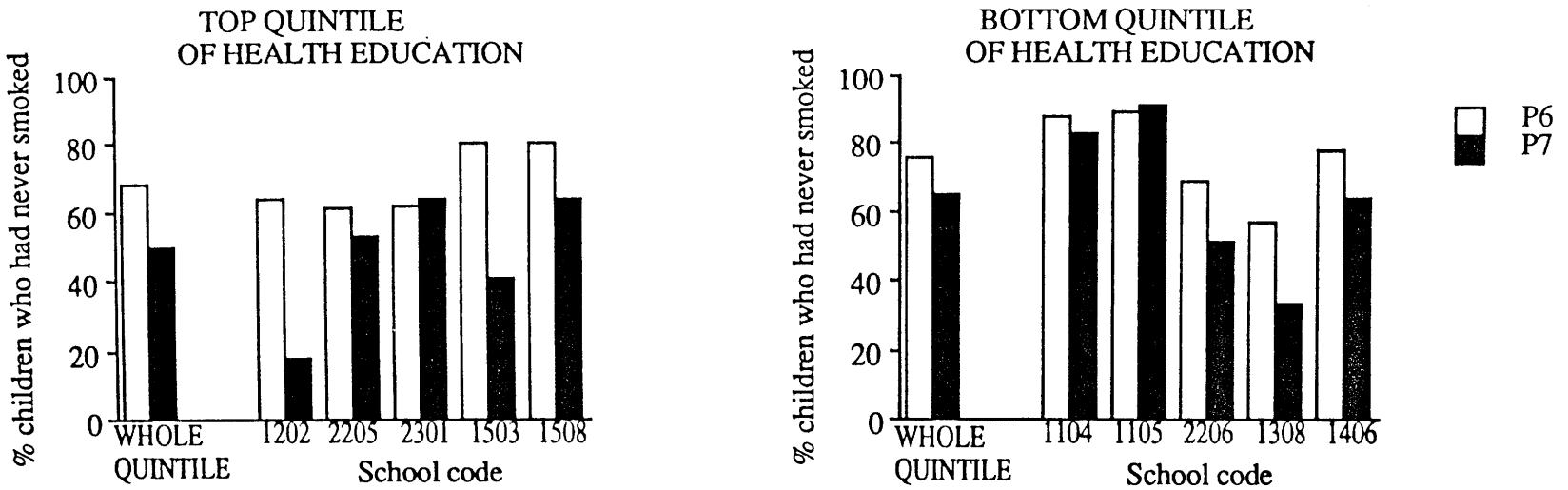


(a) Teacher's attitude

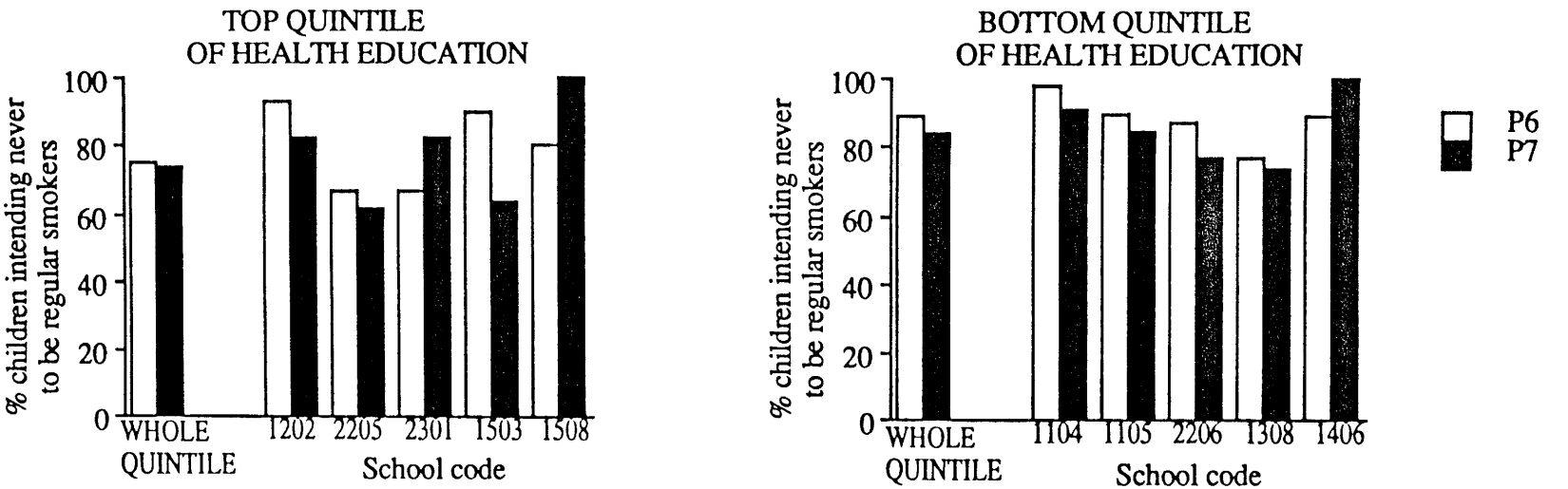


(b) Friends' smoking behaviour

Figure 5.1 A comparison of schools in the top and bottom quintiles of the amount of health education taught.



(c) Own smoking behaviour



(d) Intentions to smoke

Figure 5.1 (contd)

5.7 DISCUSSION

No detailed examination of the study results will be made here: the *methodological* issues relating to carrying out a study of this sort have already been discussed in section 3.7(1), and the *findings* of the study are of most interest to us when interpreted together with those from the other two studies. Synthesisis of the results from all three studies is undertaken in the following chapter, when the findings of the project as a whole are examined in relation to the three foci of research interest identified in Chapter 2.

Only some brief comments will be made, therefore.

The teachers overwhelmingly stated that health education should have a high priority in primary schools, and certainly the vast majority were teaching some health education. Moves to expand health education in schools may therefore receive a favourable reception from the class teachers. In particular, initiatives which actively involve parents in education for health would be welcomed by teachers. Of course, while such cooperation may be perceived as an attractive option by teachers in theory, there are many barriers to the attainment of such a situation in practice. We cannot assume that parents will value health in the same way, or to the same extent, as do those involved in formal health education. Moreover, there are practical restraints, such as limits to the amount of time for which parents may be available and able to actively participate in health education in schools. However, cooperation between the home and the school to promote the health of young people is an exciting prospect, and one which could bring many clear benefits (6.3).

The materials used for teaching about health in schools seem to be determined to a large extent by 'school policy' or recommendations from the local Education Division. Where teachers did indicate that they had selected a project material themselves, by far the most popular choice was 'Jimmy on the Road to Super Health'. This package was viewed as being of high quality in terms of its content and structure. Nevertheless, teachers were very unlikely to follow health education programmes as prescribed in the manuals. More commonly, sections were selected out of packages and either taught in

isolation or in combination with other materials. Flexibility and versatility of teaching materials for health education should therefore be a high priority.

The teachers in this sample held very similar perceptions of the relative importance of different topics to those reported in the postal survey. Again, issues to do with the prevention of ill-health, rather than the promotion of positive health, seemed to be seen as the more important, and topics particularly entangled within a mesh of social and political influences were, overall, allocated less priority for upper primary school children than were more 'biological' or 'factual' issues.

When the teaching of health education was related to indices of pupils' health-related beliefs and behaviour pattern there was a striking lack of differentiation between pupils in those schools teaching the most health education and those in the schools teaching least. In this 'messy' evaluation, no attempt was made to control for possible confounding factors, and matching between pupils and teachers took place only at the level of the school. No conclusions can be drawn from this analysis (section 5.6(6)), but the substantial between-school differences, even after controlling (in a basic way) for health education practice, are worthy of note.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

The three component studies of the project, whilst forming distinct areas of research, together permit detailed insight into many issues central to the understanding of children's health-related behaviour and the practice of health education in schools. In this chapter, the studies are examined together and their findings synthesised to address the three focal questions which represented the objectives of the project as a whole (p75).

6.1 School-based health education - meeting the aims of education and of health promotion?

Almost all teachers of Primary 6 and Primary 7 classes in primary schools located within Greater Glasgow teach some form of health education. Although there has been no change since 1982 in the *proportion* of class teachers reporting teaching some health education, there have been changes in *teaching practice*, with a wider range of issues being covered, fewer teachers relying on incidental methods, and a change in the pattern of use of specific project materials. Overall, the teachers hold positive attitudes to health education in schools - 90% of Primary 6 teachers and 100% of Primary 7 teachers thought that health education should be treated as quite or very important in their school; and the majority were also of the opinion that if health education were to be the sole responsibility of either the school or of parents, schools should take the responsibility. However, by far the preferred situation by teachers is one in which schools and parents cooperate in health education.

Health education is coming out of the realms of a peripheral, 'Cinderella' subject in schools - its importance is recognised by teachers, and reflected in their teaching practice. This is so both for Primary 6-stage teachers and for those of Primary 7 classes, although the attitudes and behaviour of the latter group are slightly more favourable.

There is clear consensus among the teachers about the issues which are most important and relevant to children in Primary 6 and Primary 7 classes. Most importance is placed on issues relating to Food and Nutrition, Hygiene and Cleanliness, and General Body Knowledge. These are mostly uncontroversial areas, which largely require an information-based approach.

In several aspects, the practice of health education in upper primary schools follows an educationally 'pure' approach:

1) To a large extent, it is undertaken solely by members of the teaching profession - only 32% of Primary 6 teachers and 38% of Primary 7 teachers reported any health education input from someone other than members of teaching staff.

2) In general, teaching practice reflects the teachers' perceptions of priority areas, but there are some discrepancies which indicate avoidance of sensitive and controversial issues. In particular, only 23% of Primary 6-, and 33% of Primary 7-stage teachers reported teaching about the issues of puberty and changes in adolescence through discussion of 'Growth and Development' - but these issues were viewed by Primary 6 teachers as the fourth most important, and by Primary 7 teachers as the 5th most important of the listed subject areas. Discussion of them, however, involves exploration of personal and emotional issues. This may be sensitive and embarrassing and perhaps cannot be easily done with a purely value-neutral information-giving approach.

3) Health education materials are rarely used exactly as designed and presented. Rather, the teachers combine materials and methods, and select those components which they regard as most useful and appropriate to the needs of their pupils. Thereby, health education practice is tailored to fit the specific requirements of the class.

4) Health education is also tailored to meet demands of the school curriculum. Teachers often cannot find enough time to follow complete projects as recommended and described in specific health education materials. Instead they may

select components to integrate with teaching of other subjects, and to meet the limited time and resources available for health education.

The pattern of health education teaching in upper primary schools is encouraging in many ways. In particular, we must be heartened by the numbers of teachers reporting teaching some health education, and in the proportion who are adopting a structured approach to do so. The importance of health education is now being recognised in schools, and this is reflected by changes in practice. However, several barriers exist to the further expansion of education about health in schools.

1) Teacher training in health education, and in the use of specific programmes in particular, is inadequate. Therefore, teachers feel ill-equipped to deal with certain issues; and if using specific project materials may do so in a manner other than that known to be the most effective.

2) Only a minority of schools (19%) have a structured scheme for health education and there are differences between Education Divisions in the presence of such schemes, with schools located within Glasgow Division being less likely to have one than are schools in the Dunbarton or Renfrew Divisions. In schools without a structured scheme for health education, teachers work independently, with the potential for a large amount of duplication of effort in some areas and for the complete omission of other areas. Without the establishment of structured health education schemes in primary schools, and the identification of a coordinator for the teaching of health issues, development of health education will inevitably be inefficient and incomplete.

3) Although there exists a range of educational materials for the teaching of health issues, and some of these have been evaluated and shown to have a beneficial effect on children's health-related behaviour, they tend to be highly structured, and designed to be taught intensively in the form of a project. In general, therefore, they do not meet the needs of teachers for flexibility and versatility. Television programmes, on the other hand, are popular for overcoming the intensity of some of the written materials.

It is clear, then, that whilst health education in schools is gaining the increased recognition advocated by policy documents, there still are several 'structural' barriers to its continued expansion and effectiveness. Its importance is now accepted by educationists who have, as a consequence, altered their practice but further advancement is restricted by factors outwith the teacher's own remit.

In addition to these factors are some limitations to effectiveness which result directly from the educational approach adopted to teaching about health. In particular, value-neutral, information-based approaches are inadequate for effecting behavioural change. Knowledge of the health effects of smoking has no association with children's experience of smoking cigarettes, nor is ignorance of the dangers regarded by children as an explanation for the uptake of smoking by their peers. In concordance with Tones' arguments, we must meet the need for affective education and the development of skills.

That teachers generally do not use project materials in their complete form also reduces the effectiveness of health education teaching. Although as described above, there are often good reasons for selecting out particular components of programmes, this approach results in the coverage of issues out of context and also in the selection of those facets viewed as interesting or relevant by teachers who may be unaware of the significance of the areas they are omitting.

The focus within the health education teaching is largely on the prevention of ill-health, - less attention is being paid to the promotion of well-being.

There is no clear pattern of association between the teaching of health education in primary schools in Greater Glasgow and pupils' beliefs and behaviour patterns. Whilst the status of health education is improving in schools, with consequent changes in teaching behaviour, its contribution to the aims of health promotion is unclear.

Recommendations:

The following recommendations are made to enable the further development of school-based health education, and to increase its effectiveness as a branch of health promotion:

1) There is a need for the development and dissemination of materials for upper primary school health education which can be used in a flexible manner, both in terms of content and with respect to timescale. Training of teachers in the use of these materials is also required.

2) Schools should develop a structured scheme for health education, so that input over the years is coordinated, and duplication and omission of issues minimised.

3) Given that there are differences between Educational Divisions in the use of specific materials and in the structuring of health education, the influence of the policies of Departments of Education must be recognised and the role of Divisional Officers as advisors and facilitators should be expanded.

4) Education about health, even in the absence of the identified barriers to its expansion and effectiveness, will not be optimally effective without the support of other health promoting input, both within the school and without. There is, therefore, a need for a more comprehensive approach which involves school policies additional to the practice of health education.

6.2 Health-related beliefs, perceptions and behaviour of schoolchildren in Greater Glasgow

It is important to understand the cognitions and behaviours of schoolchildren so that health promoting activities can meet the needs of this population by building on prevailing perceptions and addressing those factors which are associated with unhealthful behaviour.

Children in the 10-12 year age group overwhelmingly perceive health not as the absence of disease or illness, but in a very positive way, in terms of well-being and physical attributes. The most common description of health is as a state of happiness, or

of having fun. This conceptualisation is the most frequently offered by both boys and girls, although it is offered significantly more often by girls. Girls are also more likely than boys to describe health in terms of 'freshness' (feeling clean or refreshed), but are less likely to use concepts of 'activity' (being able to do things) or 'power' (doing things well, or fast, or without bounds). The perceptions of health held by children in Primary 7 classes and those held in Primary 6 are strikingly similar, and there is no indication of an onset over this year of the adult conceptualisations of health, as the absence of disease and as a requirement for routine activities.

Children have extensive knowledge about the health effects of smoking. They also regard the effects of smoking on health as the most important reasons for not being a smoker. Knowledge is thus seen as having a preventive effect, and this reminds us that we must not abandon the information-giving component of health education. However, knowledge of the health effects is insufficient to prevent children from smoking cigarettes in the face of the many pro-smoking influences acting upon them.

The children stated a range of *positive reasons* for smoking. Children who smoke are perceived as doing so largely because of the image of smoking - in particular, to look and feel 'big' - but also because of the attitudes and example of their friends. Smoking is also regarded as a means of coping with boredom, loneliness and stresses in life. Thus, whilst knowledge of the health effects of smoking is regarded as the main reason for being a nonsmoker, children are not thought to smoke simply as a result of a lack of such knowledge - there are, rather, a variety of perceived advantages of smoking.

In contrast, smokers themselves are viewed in a very *negative* way by their peers, being seen as less friendly, less clever at school, less fashionable, and worse at sports than are nonsmokers.

As a group, children who have at least tried smoking do not perceive themselves as 'smokers' but their self-image is more similar to the profile of a smoker than is that of never-smokers. Regardless of their experience of cigarette smoking, the children's

self-image is less favourable than the general image of a nonsmoker and more favourable than that of a smoker.

Regular smoking is now almost absent among 10-12 year old children in Glasgow. Only 0.2% of Primary 6 children, and 1.8% of those in Primary 7 reported smoking one or more cigarettes per week, and more than three quarters of these were boys. However, 24% of children in Primary 6 classes and 38% of those in Primary 7 had at least tried smoking a cigarette. Boys were no more likely to have tried smoking than were girls, but they generally puffed their first cigarette at a younger age.

Children who have tried cigarette smoking are significantly more likely than are those who have never smoked to intend to become regular smokers in the future. Intention to smoke is itself the best predictor of uptake of smoking. Therefore, although early experiences of smoking are rarely enjoyable, they do not generally act as a deterrent to smoking.

There are some indicators that children in this age group who have tried smoking have a rather more unhealthy lifestyle than do those who have never smoked. They are significantly more likely to have drunk alcohol, to frequent organised public entertainment such as cinemas and discos, and to eat their meals less regularly than are children who have never smoked. These findings illustrate that even in primary school, there is a group of children whose lifestyle displays several facets of unhealthful living. The problem is that with time this group may become increasingly divergent from the majority, and exhibit a web of interrelated behaviours which are detrimental to their health.

Several changes occur in the cognitions and behaviours of children as they progress from Primary 6 through Primary 7 classes. Attitudes towards smoking become less favourable, with fewer children being of the opinion that 'smoking makes you look tough', 'smoking makes you feel grown up', and 'smoking makes you smelly'. Moreover, perceptions of smokers become less favourable and perceptions of nonsmokers more favourable.

The pattern of behavioural change between Primary 6 and Primary 7 contrasts with these anti-smoking changes in attitude: in Primary 7 more children have tried smoking and a greater proportion are smoking on a regular basis.

Recommendations:

The following recommendations are made so that health education will be appropriate and meaningful for children, and will deal with the pertinent issues.

1. Health education must move away from concentrating on issues of ill-health and disease, and on the physical dimension of health. Children do not perceive health in these terms. They view health in positive terms and emphasise the mental and social as well as physical aspects.

2. Health education must rectify some of the misperceptions held by children in relation to cigarette smoking. That smokers are perceived very negatively, in relation to nonsmokers must be emphasised, and details of the true prevalence of smoking among children (very much lower than that estimated by the children themselves) must be presented. These misperceptions may be rectified by the provision of information, whereas others (such as some of the perceived benefits of smoking) require approaches to change attitudes and negate images and by tobacco sponsorship, advertising, and the mass media.

3. In recognition of the group of children at risk of adopting a generally unhealthful lifestyle, teachers must not simply proceed with health education appropriate to the average pupil. Just as teaching of academic subjects must take account of the range of academic ability within a class, so must health education accommodate the range of health needs.

4. The children in Primary 7 classes hold beliefs about smoking which are significantly different to those they possessed in Primary 6. Overall the trend is one towards more negative views of smokers and of the smoking habit. The children in Primary 7 do, however, suggest more reasons associated with the image of smoking as explanations for children of their age becoming smokers. Although they themselves do not see smokers in a favourable light, they are aware of attitudes in society attributing

positive characteristics on to smokers. Therefore, as the children get older, the focus of health education must shift from an approach addressing the children's own cognitions to one which takes account of the attitudes and values prevalent in society as a whole and the mechanisms whereby these are perpetuated (6.3).

6.3 Roles for the school and the home in health education

Although there are several changes which should be made within the educational system to improve the effectiveness of health education in schools (6.1), the influence of factors external to the school must also be recognised.

The following factors were found, on multivariate analysis, to be associated with children trying a cigarette between Primary 6 and Primary 7:

(a) Intention to become a regular smoker.

(b) Perception that 'most' of their peers smoke cigarettes.

(c) Having a father who smokes cigarettes.

(d) Having a mother who smokes cigarettes.

(e) Having an older brother who smokes cigarettes.

(f) Mother's occupation.

Of these factors, only (a) and (b) are susceptible to change simply through pupil education; (c) - (e) require active participation by other family members (which may, of course, be *triggered* by a child's response to school health education). There have been recent school-based health education projects which have been designed expressly to use children's health education as a means of 'educating' parents, with the aim of effecting behavioural change in the home. Although there is obviously a need for change in the home environment in order for important risk factors for children's smoking to be addressed, the acceptability of using children as a means of contacting an adult population relatively inaccessible to health educators is questionable. A preferable approach involves direct contact between parents and teachers, and the active participation of parents in health education planning and practice.

Teachers view cooperation with parents as the most desirable approach to health education - 95% of Primary 6 teachers, and 86% of Primary 7 teachers agreed that there should be such cooperation. Various benefits could arise from such an approach:

(a) Parents would have some influence over the content of health education in schools. This must be a welcome situation given the centrality of health and related behaviour patterns to people's lifestyle.

(b) The likelihood of 'culture clash' between the messages given and values promoted in school and those at home, would be reduced.

(c) Parents would have greater awareness of the content of school health education. Only with such parental awareness can health education in the home reinforce messages and address any issues omitted, or covered in only a limited way, in school.

(d) Contact with parents to discuss health education would provide an opportunity for teachers to inform parents of the importance of family factors, and of other variables which are outwith the influence of health education in schools. This has the advantage not only of alerting parents to their role but also of indicating the existence of barriers to effective school health education and the need for supplementary input if the healthful behavioural outcome is to be achieved.

Cooperation of this sort between parents and teachers will not easily be achieved in practice. A first step is to assess the willingness of parents to participate in the planning of health education and to carry out their role in practice. Thereafter, meetings should be arranged at which the roles of the school and the home are identified, and the content of school health education defined. It would be unrealistic to expect all parents to express an interest and to play any substantial role in their children's health education, but the involvement of even a subgroup of parents is preferable to the current situation where they have no influence over the health messages given to schools.

There are various ways in which parents can influence their children's health-related behaviour. Most important, perhaps, is the example of their own behaviour.

Children with parents who smoke cigarettes are at considerably greater risk of trying smoking themselves than are those whose parents are nonsmokers. Several mechanisms may be in operation here, ranging from practical issues such as easy availability of cigarettes, to more elusive processes such as modelling. Whatever the mechanism, it is largely outwith the influence of health education taught in school.

Parents influence their children's behaviour also through the attitudes that they express themselves. Children report talking more to their parents about health, and about cigarette smoking, than they do to their friends or siblings. There are, therefore, potentially great opportunities for parents to demonstrate their beliefs and attitudes towards health-related activities, and to actively influence their children's outlook in a healthful manner.

Another set of influences, namely the role of friends, or the peer group, has been the focus of extensive research interest in the past. The results of this study illustrate the importance of such a focus. Having friends who smoke is a factor more strongly associated with smoking among children in Primary 6 and Primary 7 classes than either parental or sibling sample. However, it is not a risk factor for the *uptake* of smoking at this age, rather it seems that children who smoke may then seek the company of other smokers.

Health education in the school can have only a limited impact, but its influence in preventing cigarette smoking behaviour among children will be considerably greater if its focus is broadened to encompass the following issues:

(a) Misconceptions about the prevalence of smoking must be corrected. Children who smoke overestimate the proportion of their peers who also smoke cigarettes and make higher estimates of prevalence than do those children who have never smoked. In this way they may 'normalise' their habit.

(b) That children hold predominantly negative images of smokers, must be emphasised. These negative images are held by ever-smokers to a lesser extent than they are held by never-smokers. Children who smoke may seek out the company of other children who smoke and thereby be protected to an extent from becoming aware of

others' negative perceptions. There is an important role for health education, therefore, in emphasising the ways in which smokers are perceived by their nonsmoking peers.

(c) The role of cigarette advertising must be explored. Children who have ever smoked a cigarette hold more favourable attitudes to cigarette advertisements, and illustrate greater awareness of cigarette brands than do never-smokers. This occurs despite the voluntary agreements which exist between the Government and tobacco companies, namely that advertisements will not be directed at children. Children clearly *are* susceptible to influence by existing advertisements, and this may overshadow the impact of health-promoting messages which are supported by a considerably smaller budget than that available to the tobacco magnates. There is a role for health education in exploring the voluntary agreements and in examining with children the patterns of tobacco advertising. Children who are aware of the effects of advertising, and are knowledgeable about the voluntary agreements and the need for them, will be less influenced by advertisements for cigarettes.

Recommendations:

Changes are clearly required in the roles of both the school and the home for health education. The following are recommended:

1. Recognition must be made of the inevitable limitations to the effectiveness of school health education. Many of the unhealthful influences acting on children cannot be changed by health education in schools. In these cases, the role of school health education must be to raise awareness and to equip children with the necessary skills to resist such influences. These are realistic expectations of health education in schools.

2. Teachers and parents should cooperate in the planning and development of school health education. Thereby, the importance of home influences can be stressed and the role of parents in health education clarified. As in the case of within-school coordination of health education, this approach enables comprehensive coverage of issues and at least *reduces* the likelihood of contradictory messages being given to children.

3. Education for health in the home and in school is inadequate to influence all factors shown to have an unhealthful effect on children's behaviour. These approaches therefore need to be supplemented and reinforced by other health-promoting measures in the community. In particular, a reduction in the prevalence of smoking among adults and alteration of prevailing pro-smoking attitudes are likely to have direct and indirect effects on children's smoking behaviour. This is not to advocate a change in emphasis back from prevention to cessation but, rather, to make recognition of the limitations of anti-smoking messages given to children exposed to widespread acceptance of the habit, general display of cigarette smoking (often by their role models), and active promotion of cigarettes through sponsorship and advertising.

6.4 Future research

Interpretation of some of my study results is hampered by limitations of the research methodology employed. In other cases, interpretation is difficult not because of weaknesses inherent to my approach but, rather, as a consequence of gaps in the knowledge base of issues related to those examined in this project. Thus, whilst the conclusions from my studies are clear, it is impossible to interpret them in context without additional information.

In this section, recommendations are made for future research to meet the limitations of my studies and also to address the needs identified from them.

6.4(1) Future research - meeting the limitations of this project

1) My evaluation of school health education has concentrated on the *process*, taking a teacher-centred view and examining the pattern of health teaching in primary schools. Only an *ad hoc* attempt was made to relate different patterns of teaching to outcome measures in the form of pupils' beliefs and health-related behaviour. Previous research studies have mostly taken the opposite approach - evaluating specific health education programmes in terms of their effectiveness at influencing children's beliefs and behaviour in experimental conditions, without taking adequate account of the

limitations to practice in the field. What is needed in the future is evaluation which builds on the approach taken in this project. The primary aim must be to make improvements to the process of health education in schools. To achieve this we require innovative evaluation methods, incorporating pupil-centred as well as teacher-centred approaches. Only once health education practice in schools is understood, and the restrictions to it are recognised, can we set realistic aims for school health and justifiably expect them to be achieved.

2) No examination was made in this project of the accuracy of teachers' reports of their health education practice. The results presented here make the assumption that these reports are both valid and reliable. There is a need for future research to examine this assumption. Any of the following approaches could be taken to do this:

(a) In addition to completing a questionnaire, teachers could be asked to fill in diaries recording their health education teaching. However, given the indication that the pattern of discussion of health issues varies between different school terms, diaries would need to be completed throughout the school year, or at sampled times representative of the whole year. This is clearly a massive undertaking and would require extensive commitment and participation from the teachers. Nevertheless, it is perhaps the most satisfactory method for making a complete and accurate record of teaching practice.

(b) Pupils could be questioned about the health education which they had received during the year, and their reports then compared with those of teachers. An advantage of this approach is that the pupils' reports would indicate not only what they were taught but also the enthusiasm with which they participated in the lessons and the impact of the different lessons. This pupil-centred approach is not ideal for assessing the validity of teachers' reports, for given a full curriculum, children are unlikely to remember each lesson, even if they were present for it. Nevertheless, this approach forms an important component of the process evaluation advocated above, as well as providing a means of assessing the validity of teachers' reports of practice.

(c) The reliability of the teachers' responses could be examined by requesting details of their health education teaching in two different questionnaires, or by assessing the consistency of response to linked questions within a single questionnaire. Reliability is an important indicator of accuracy of response - but where responses are inconsistent it does not enable any assessment of which response is the valid one. This method is, therefore, best combined with some 'objective', or 'other-observed' indicator of practice (e.g. (b) or (d)).

(d) Teaching practice could be assessed by participant observation carried out by a researcher. This approach runs the risk that the presence of an observer may affect the teacher's behaviour. Nevertheless, although clearly a labour-intensive approach it is the most suitable means of obtaining an objective assessment of practice.

3) Over 70% of the children who indicated an intention to be a regular smoker in the future did not provide a reason for this intention but, rather, stated reasons for never becoming a smoker. I have speculated that this inconsistency (which was absent from the other linked questions) may have resulted from the children's relative difficulty in stating reasons for smoking compared with reasons for not smoking. However, my suggestion that it is the closed-question response which is the more valid needs to be tested, and the various possible explanations for the inconsistency of responses require exploration.

4) The one-year follow-up approach taken in this project enabled the examination of the change which occurs between Primary 6 and Primary 7 in the beliefs and behaviour of schoolchildren, and the identification of those factors which are associated with such change. Longitudinal studies, following a cohort of children over a longer period of time, can illustrate changes occurring at different stages, provide awareness of those stages when the greatest changes occur and enable identification of the factors associated with beliefs and behaviour patterns which may develop in the future. With this information, health education can be tailored to the needs of children at different stages and can tackle those issues shown to be of importance in the long term. Few longitudinal studies have been undertaken either for the examination of risk

factors for smoking behaviour (4.2) or for the evaluation of health education in schools (5.2). My research, whilst going someway beyond a snap-shot, cross-sectional approach, has limited implications because the observed changes cannot be placed in the context of trends and nor can the importance of the factors found to be associated with smoking over the year of the study be assessed in the long term. The many cross-sectional studies of children's health-related behaviour have identified the factors of relevance. Future research should accommodate this knowledge into longitudinal study designs.

6.4(2) Future research - addressing needs identified by this project

1) I employed some novel approaches in my research to investigate children's health-related beliefs. The results of these 'open' investigations illustrate some aspects of children's perspectives on health-related issues not identified by previous research. These may have important implications for health education and for the understanding of some of the observed interrelationships between beliefs, attitudes and behaviour. Before the extent of these implications can be understood, however, the findings from the open questions need to be explored further. This should be done both through straightforward approaches on questionnaires; and also through more flexible exploratory interview methods. The former approach overcomes the difficulties of completion and of coding of questions by less able respondents, whereas the latter permits investigation of underlying issues and of possible explanations for the children's varied perceptions.

The standard questions used to investigate children's knowledge of the health effects of smoking, and their attitudes towards smoking, have been included in many studies, including the one described in this thesis. These questions do permit comparison over time and between different areas of children's beliefs and attitudes. However, none of the variables investigated has consistently been shown to be predictive of smoking behaviour - there is great variability in the findings of different studies. The usefulness of the inclusion of these standard questions as a matter of course must now be doubted.

2) There is a need for a study to investigate children's value systems. My research results indicate that smokers are perceived much more negatively than are

nonsmokers on all the given traits except 'grown-up' and 'shy'. What importance do children place on being grown up, and on not being shy? Does possession of these characteristics compensate for the absence of others such as being 'good at sports' or 'fashionable and trendy'? An awareness of the values children place on different traits is important for the development of health education messages which are relevant to valuations made by children.

Children's value systems need investigation, also, to examine the place of health within the overall scheme. Most children have little experience of ill-health, and the majority define health in terms of 'happiness' or 'well-being'. It is likely, therefore, that health is to a large extent taken for granted, rather than valued as something special by children. If this is the case then there is a clear role for health education to promote health as something to be valued.

3) The reported prevalence of smoking in this study was very low, and for my analyses I had to group together all those who had ever smoked, because of the very small numbers of regular smokers in my sample. There are obvious problems with grouping together different response categories in this way, and if the low prevalence reported here is not somehow an atypical finding (and indeed there have been several indications from other studies that levels of children's smoking *are* falling) then there is a need for future research to consider the following issues :

(a) The definition of regular smoking (as the smoking of at least one cigarette per week) may now be inappropriate for children of 10-12 years old. If the *regularity* of the habit is the factor of interest in a study, then a lower level of smoking may need to be taken as the cut-off point for defining regular smokers. If, on the other hand, it is the experience of having *ever* tried a cigarette that is of interest, then all ever-smokers may be grouped together, with regular smokers still classified in accordance with the current definition. Any redefinition of the base level for regular smoking would result in problems of comparison with previous research and is undesirable for this reason.

(b) Given such low levels of smoking among children of the upper primary school age group it may be that attention should now be turned away from this group towards older children among whom smoking is more prevalent. This is not to say that the younger children should no longer be seen as a priority group for the focus of anti-smoking education, but rather to acknowledge the successes achieved with this age group in comparison with older cohorts of children.

4) A recommendation was made above for more longitudinal studies, so that snap-shots from particular age groups may be put into a context of overall trends. An issue related to the longitudinal study design, and one that can be investigated by it, is that of the Hawthorne effect. We need to know whether participation in research projects *itself* affects the responses given.

5) One factor which is often omitted from analyses and ignored in the comparison of research results is that of the time of year when the research was carried out. The timing of a study will have an effect on the results obtained, as a consequence both of differences in the ages of the respondents and also of variables related to the stage of the school year. The extent of these effects needs to be examined with respect to the children's reports of their health-related beliefs and behaviour, and also to teachers' reports of their health education teaching.

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INFLUENCES ON THE HEALTH-RELATED BELIEFS AND BEHAVIOURS OF SCHOOLCHILDREN: IMPLICATIONS FOR HEALTH EDUCATION

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A thesis in two volumes
submitted to the University of Glasgow
for the degree of Doctor of Philosophy
in the Faculty of Medicine

June 1989
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VOLUME 2

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Table 3.1 DEGREE OF RESPONSE, BY EDUCATIONAL DIVISION

Coding of Degree of Response

0 = No Response at all
1 = Response from the school, but no completed questionnaires
2 = Returned head teacher's questionnaire only
3 = Returned at least 1 class teacher's questionnaire

Educational division	Degree of response 0 N	(%)	1 N	(%)	2 N	(%)	3 N	(%)	TOTAL N	(%)
Glasgow	55	(24.5)	26	(11.6)	28	(12.5)	115	(51.3)	224	(100.0)
Dunbarton	9	(15.2)	1	(1.7)	4	(6.8)	45	(76.3)	59	(100.0)
Renfrew	3	(20.0)	1	(6.7)	2	(13.3)	9	(60.0)	15	(100.0)
TOTAL	67	(22.5)	28	(9.4)	34	(11.4)	169	(56.7)	298	(100.0)

$X^2 = 13.32$ df = 6 p = 0.037

Table 3.2 DEGREE OF RESPONSE, BY LEVEL OF DEPRIVATION

Degree of Response coded as in Table 3.1

Level of deprivation	Degree of response 0 N	(%)	1 N	(%)	2 N	(%)	3 N	(%)	TOTAL N	(%)
1 'Low'	8	(16.3)	5	(10.2)	5	(10.2)	31	(63.3)	49	(100.0)
2	7	(20.6)	2	(5.9)	6	(17.6)	19	(55.9)	34	(100.0)
3	21	(25.6)	9	(11.0)	4	(4.9)	48	(58.5)	82	(100.0)
4	8	(19.5)	5	(12.2)	3	(7.3)	25	(61.0)	41	(100.0)
5 'High'	23	(25.0)	7	(7.6)	16	(17.4)	46	(50.0)	92	(100.0)
TOTAL	67	(22.5)	28	(9.4)	34	(11.4)	169	(56.7)	298	(100.0)

$X^2 = 12.10$ df = 12 p = 0.060

Table 3.3 LEVEL OF DEPRIVATION, BY EDUCATIONAL DIVISION

Educational division	Level of deprivation 1 N	(%)	2 N	(%)	3 N	(%)	4 N	(%)	5 N	(%)	TOTAL N	(%)
Glasgow	12	(5.4)	20	(8.9)	61	(27.2)	41	(18.3)	90	(40.2)	224	(100.0)
Dunbarton	22	(37.3)	14	(23.7)	21	(35.6)	0	(0.0)	2	(3.4)	59	(100.0)
Renfrew	15	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	15	(100.0)
TOTAL	49	(16.4)	34	(11.4)	82	(27.5)	41	(13.8)	92	(30.9)	298	(100.0)

$X^2 = 151.22$ df = 8 $p < 0.001$

Table 3.4 RELIGIOUS DENOMINATION, BY EDUCATIONAL DIVISION

Educational division	Denomination Non-denominational N	(%)	Roman Catholic N	(%)	TOTAL* N	(%)
Glasgow	101	(60.1)	67	(39.9)	168	(100.0)
Dunbarton	34	(69.4)	15	(30.6)	49	(100.0)
Renfrew	9	(75.0)	3	(25.0)	12	(100.0)
TOTAL	144	(62.9)	85	(37.1)	299	(100.0)

$X^2 = 2.193$ df = 2 $p = 0.334$

* Data missing for 2 cases

Table 3.5 LEVEL OF DEPRIVATION, BY SCHOOL'S LOCATION

	Level of deprivation											
	1		2		3		4		5		TOTAL*	
Location	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Urban	30	(76.9)	22	(78.6)	51	(86.4)	32	(100.0)	66	(94.3)	201	(100.0)
Rural/Semi Rural	9	(23.1)	6	(21.4)	8	(13.6)	-	(0.0)	4	(5.7)	27	(100.0)
TOTAL	39	(100.0)	28	(100.0)	59	(100.0)	32	(100.0)	70	(100.0)	228	(100.0)

* Data missing for 3 cases

$X^2 = 14.16$ df = 4 p = 0.007

Table 3.6 SIZE OF THE SCHOOL ROLL

Roll size	N*	(%)
< 50	3	(1.5)
51 - 100	5	(2.5)
101 - 150	17	(8.5)
151 - 200	41	(20.6)
201 - 250	51	(25.6)
251 - 300	24	(12.1)
301 - 350	24	(12.1)
351 - 400	18	(9.0)
400 <	16	(8.0)
TOTAL	199	(100.0)

* Data missing for 32 cases

Table 3.7 STAGE TAUGHT BY RESPONDENT TEACHERS

Stage	N	(%)
P6	144	(35.9)
P7	177	(44.1)
P5/6	30	(7.5)
P6/7	46	(11.5)
Other	4	(1.0)
TOTAL	401	(100.0)

Table 3.8 YEARS OF EXPERIENCE TEACHING THIS STAGE

Years	N*	(%)
1	110	(29.7)
2 - 5	124	(33.5)
6 - 10	102	(27.6)
11 - 15	22	(6.0)
> 15	12	(3.2)
TOTAL	370	(100.0)

* Data missing for 31 cases

Table 3.9 TEACHING OF HEALTH EDUCATION

Educational division	Taught health education? Yes N	Yes (%)	No N	No (%)	TOTAL N	TOTAL (%)
Glasgow	222	(86.7)	34	(13.3)	256	(100.0)
Dunbarton	110	(92.4)	9	(7.6)	119	(100.0)
Renfrew	24	(96.0)	1	(4.0)	25	(100.0)
TOTAL	356	(89.0)	44	(11.0)	400	(100.0)

* Data missing for 1 case

$X^2 = 4.05$ df = 2 p = 0.132

Table 3.10 HEALTH EDUCATION, BY STAGE TAUGHT

Stage	Taught health education? Yes N	(%)	No N	(%)	TOTAL* N	(%)
P6	126	(87.5)	18	(12.5)	144	(100.0)
P7	158	(89.3)	19	(10.7)	177	(100.0)
P5/6	27	(93.1)	2	(6.9)	29	(100.0)
P6/7	41	(89.1)	5	(10.9)	46	(100.0)
Other	4	(100.0)	-	(0.0)	4	(100.0)
TOTAL	356	(89.0)	44	(11.0)	400	(100.0)

* Data missing for 1 case

X^2 = 1.34 df = 4 p = 0.855

Table 3.11 HEALTH EDUCATION, BY LEVEL OF DEPRIVATION

Deprivation Level	Taught health education? Yes N	(%)	No N	(%)	TOTAL* N	(%)
1 'Low'	70	(97.2)	2	(2.8)	72	(100.0)
2	38	(80.8)	9	(19.2)	47	(100.0)
3	112	(93.3)	8	(6.7)	120	(100.0)
4	50	(86.2)	8	(13.8)	58	(100.0)
5 'High'	86	(83.5)	17	(16.5)	103	(100.0)
TOTAL	356	(89.0)	44	(11.0)	400	(100.0)

* Data missing for 1 case

X^2 = 14.11 df = 4 p = 0.007

X^2 for trend = 5.67 df = 1 p = 0.017

Table 3.12 TIME SPENT TEACHING HEALTH EDUCATION

Number of hours	N	(%)
0-10	33	(21.2)
11-20	57	(36.5)
21-30	25	(16.0)
31-40	26	(16.7)
41-50	11	(7.0)
>50	4	(2.6)
TOTAL	156	(100.0)

Table 3.13 METHODS USED FOR HEALTH EDUCATION

	Educational division				
Method	Glasgow	Dunbarton	Renfrew	TOTAL	(%)
Incidental Only	72	16	6	94	(26.4)
Centre-of-Interest Only	53	32	9	94	(26.4)
School's Own Scheme Only	11	9	-	20	(5.6)
Another Method Only	4	5	-	9	(2.5)
Incidental + Centre-of-Interest	48	12	1	61	(17.1)
Incidental + School's Own Scheme	7	11	3	21	(5.9)
Centre-of-Interest + School's Own Scheme	9	5	2	16	(4.5)
Other	18	20	3	41	(11.6)
TOTAL	222	110	24	356	(100.0)

Table 3.14 USE OF SCHOOL'S OWN SCHEME FOR HEALTH EDUCATION, BY EDUCATIONAL DIVISION

Educational division	Use of school's own scheme: Yes N	Yes (%)	No N	No (%)	TOTAL* N	TOTAL* (%)
Glasgow	33	(12.9)	223	(87.1)	256	(100.0)
Dunbarton	36	(31.0)	80	(69.0)	116	(100.0)
Renfrew	7	(28.0)	18	(72.0)	25	(100.0)
TOTAL	76	(19.1)	321	(80.9)	397	(100.0)

* Data missing for 4 cases

$X^2 = 18.33$ df = 2 $p < 0.001$

Table 3.15 AVAILABILITY OF MATERIALS IN SCHOOLS

Material	Schools having the material available: N	(% of schools) (responding)
Schools Council	29	(12.6)
Education for Healthy Living	129	(55.9)
Jimmy on the Road to Super Health	193	(83.5)
Good Health	68	(29.4)
Local Division Guidelines	71	(30.7)
Library Reference Books	150	(64.9)
Other	86	(37.2)

Table 3.16 NUMBER OF MATERIALS USED FOR HEALTH EDUCATION (HE)

Total number of materials	N*	Teachers using each (% of those teaching HE) (N = 356)
0	77	-
1	109	(33.9)
2	114	(35.4)
3	59	(18.3)
4	33	(10.2)
5<	7	(2.2)
TOTAL	399	(100.0)

* Data missing for 2 cases

Table 3.17 MATERIALS USED FOR HEALTH EDUCATION (HE)

Material	Educational division: Glasgow	Dunbarton	Renfrew	TOTAL	(% of those teaching HE) (N = 356)
Schools Council	3	2	2	7	(2.0)
Billy Hughes	8	14	5	27	(7.6)
Education for Healthy Living	26	5	1	32	(9.0)
Jimmy on the Road to Super Health	95	53	10	158	(44.4)
Good Health	41	22	6	69	(19.4)
Health Education for Schools	1	-	-	1	(0.0)
Health Leaflets	77	32	6	115	(32.3)
TV Programmes	92	37	8	137	(38.5)
Other	80	50	11	141	(39.6)

Table 3.18 USE OF 'JIMMY', BY EDUCATIONAL DIVISION

Educational division	Use of 'Jimmy' Yes N	(%)	No N	(%)	TOTAL N	(%)
Glasgow	95	(42.8)	127	(57.2)	222	(100.0)
Dunbarton	53	(48.2)	57	(51.8)	110	(100.0)
Renfrew	10	(41.7)	14	(58.3)	24	(100.0)
TOTAL	158	(44.4)	198	(55.6)	356	(100.0)

$X^2 = 0.94$ df = 2 p = 0.625

Table 3.19 USE OF 'JIMMY', BY LEVEL OF DEPRIVATION

Level of deprivation	Use of 'Jimmy' Yes N	(%)	No N	(%)	TOTAL* N	(%)
1 'Low'	34	(48.6)	36	(51.4)	70	(100.0)
2	22	(57.9)	16	(42.1)	38	(100.0)
3	43	(38.4)	69	(61.6)	112	(100.0)
4	24	(49.0)	25	(51.0)	49	(100.0)
5 'High'	34	(39.5)	52	(60.5)	86	(100.0)
TOTAL	157	(44.2)	198	(55.8)	355	(100.0)

* Data missing for 1 case

$X^2 = 6.18$ df = 4 p = 0.186

Table 3.20 TEACHING ABOUT HEALTH TOPICS, BY STAGE TAUGHT

Health point		Primary 6 and Primary 7 teachers teaching about each health point: Yes N	Yes (%)	No N	No (%)	TOTAL N	TOTAL (%)
Diet	P6	113	(79.0)	30	(21.0)	143	(100.0)
	P7	145	(83.8)	28	(16.2)	173	(100.0)
Smoking	P6	98	(68.5)	45	(31.5)	143	(100.0)
	P7	138	(79.8)	35	(20.2)	173	(100.0)
Drugs	P6	58	(40.6)	85	(59.4)	143	(100.0)
	P7	92	(53.2)	81	(46.8)	173	(100.0)
Alcohol	P6	43	(30.1)	100	(69.9)	143	(100.0)
	P7	78	(45.1)	95	(54.9)	173	(100.0)
Glue	P6	46	(32.2)	97	(67.8)	143	(100.0)
	P7	79	(45.7)	94	(54.3)	173	(100.0)

Results of X^2 tests of association:

Diet	:	$X^2 = 0.90$	$p = 0.34$
Smoking	:	$X^2 = 4.65$	$p = 0.03$
Drugs	:	$X^2 = 4.51$	$p = 0.03$
Alcohol	:	$X^2 = 6.85$	$p = 0.01$
Glue	:	$X^2 = 5.41$	$p = 0.02$

Table 3.21 TEACHING OF HEALTH TOPICS, BY LEVEL OF DEPRIVATION

Teaching about diet

Level of deprivation	Yes N	Yes (%)	No N	No (%)	TOTAL* N	TOTAL* (%)
1 'Low'	67	(93.1)	5	(6.9)	72	(100.0)
2	32	(74.4)	11	(25.6)	43	(100.0)
3	100	(83.3)	20	(16.7)	120	(100.0)
4	45	(77.6)	13	(22.4)	58	(100.0)
5 'High'	76	(74.5)	26	(25.5)	102	(100.0)
TOTAL	320	(81.0)	75	(19.0)	395	(100.0)

* Data missing for 6 cases

$X^2 = 11.67$ df = 4 p = 0.02

Corresponding values for the other 4 health topics are:

Smoking	:	$X^2 = 6.77$	p = 0.15
Drugs	:	$X^2 = 3.97$	p = 0.41
Alcohol	:	$X^2 = 2.04$	p = 0.73
Glue	:	$X^2 = 2.11$	p = 0.71

Table 3.22 TEACHING ABOUT HEALTH TOPICS, BY EDUCATIONAL DIVISION

Health topic		Educational division: Glasgow* N	(%)	Dunbarton N	(%)	Renfrew N	(%)	TOTAL N	(%)
Diet	Yes	195	(77.4)	102	(86.4)	23	(92.0)	320	(81.0)
	No	57	(22.6)	16	(13.6)	2	(8.0)	75	(19.0)
Smoking	Yes	180	(71.4)	90	(76.3)	17	(68.0)	287	(72.7)
	No	72	(28.6)	28	(23.7)	8	(32.0)	108	(27.3)
Drugs	Yes	113	(44.8)	57	(48.3)	11	(44.0)	181	(45.8)
	No	139	(55.2)	61	(51.7)	14	(56.0)	214	(54.2)
Alcohol	Yes	89	(35.3)	47	(39.8)	7	(28.0)	143	(36.2)
	No	163	(64.7)	71	(60.2)	18	(72.0)	252	(63.8)
Glue	Yes	103	(40.9)	46	(39.0)	3	(12.0)	152	(38.5)
	No	149	(59.1)	72	(61.0)	22	(88.0)	243	(61.5)
TOTAL		252		118		25		395	

* For each topic, data missing for 6 cases

Diet	: $X^2 = 6.38$	df = 2	p = 0.04
Smoking	: $X^2 = 1.24$	df = 2	p = 0.54
Drugs	: $X^2 = 0.42$	df = 2	p = 0.81
Alcohol	: $X^2 = 1.49$	df = 2	p = 0.47
Glue	: $X^2 = 8.03$	df = 2	p = 0.02

Table 3.23 PLANS FOR CHANGE

Do you plan to change your health education input?*

Yes	(%)	No	(%)
170	(42.4)	184	(45.9)

	Increase		Decrease		No change		Not Applicable
	N	(%)	N	(%)	N	(%)	N
Diet	72	(42.4)	16	(9.4)	64	(37.6)	184
Smoking	50	(29.4)	26	(15.3)	63	(37.1)	184
Drugs	68	(40.0)	32	(18.8)	29	(17.1)	184
Alcohol	38	(22.4)	33	(19.4)	44	(25.9)	184
Glue	57	(33.5)	25	(14.7)	38	(22.4)	184

* Data missing for 47 cases

(%s are calculated as %s of the 170 teachers planning change)
(%s do not total 100% due to missing data)

Table 3.24 PLANS FOR CHANGE, BY STAGE TO BE TAUGHT

Do you plan to change your health education input?

Stage to be taught	Yes		No		TOTAL*	
	N	(%)	N	(%)	N	(%)
Primary 6	20	(26.7)	55	(73.3)	75	(100.0)
Primary 7	62	(44.0)	79	(56.0)	141	(100.0)
TOTAL	82	(38.0)	134	(62.0)	216	(100.0)

* Data missing for 7 cases

$X^2 = 6.23$ df = 1 p = 0.013

Table 3.25 PRIORITIES FOR TOPICS - ALL TEACHERS (N=401)

Topic	Mean Rank	Rank Order
Hygiene & Cleanliness	2.91	1
Food & Nutrition	4.01	2
General Body Knowledge	5.67	3
Exercise & Rest	6.11	4
Safety & the Out-of-Doors	6.60	5
Safety & First Aid	6.62	6
Smoking	6.76	7
Growth & Development	6.80	8
Relationships	7.32	9
Drugs	8.66	10
Pollution	9.20	11
Alcohol	9.32	12
Sex Education	10.68	13

NB Each topic was allocated a minimum rank of 1 and a maximum rank of 13.

Table 3.26 PRIORITIES FOR TOPICS, BY STAGE TAUGHT

	P6 Teachers (N=144)		P7 Teachers (N=177)	
Topic	Mean Rank	Order	Mean Rank	Order
Hygiene & Cleanliness	2.87	1	2.93	1
Food & Nutrition	4.03	2	3.95	2
General Body Knowledge	5.68	3	5.67	3
Exercise & Rest	6.30	4	5.90	4
Safety & the Out-of-Doors	6.74	8	6.56	6
Safety & First Aid	6.44	5	6.58	7
*Smoking	7.22	9	6.55	5
Growth & Development	6.53	6	6.81	8
Relationships	6.73	7	7.33	9
Drugs	8.57	10	8.82	10
Pollution	9.32	11	9.35	12
Alcohol	9.57	12	9.24	11
Sex Education	10.65	13	10.67	13

r = 0.907

* Largest difference in rank order was for 'Smoking'.

Table 3.27 PRIORITIES FOR TOPICS, BY RELIGIOUS DENOMINATION

Topic	Non-Denominational (N=266)		Roman Catholic (N=132)	
	Mean Rank	Order	Mean Rank	Order
Hygiene & Cleanliness	3.17	1	2.39	1
Food & Nutrition	4.18	2	3.71	2
General Body Knowledge	5.71	3	5.64	3
Exercise & Rest	6.10	4	6.08	6
Safety & the Out-of-Doors	6.83	6	6.17	7
Safety & First Aid	6.88	7	6.07	5
Smoking	6.34	5	7.63	8
*Growth & Development	7.40	9	5.66	4
Relationships	6.97	8	7.95	9
Drugs	8.30	10	9.41	11
Pollution	9.37	12	8.88	10
Alcohol	8.99	11	9.96	12
Sex Education	10.40	13	11.23	13

r = 0.863

* Largest difference in rank order was for 'Growth and Development'.

Table 3.28 PRIORITIES FOR TOPICS - BY EDUCATIONAL DIVISION

	Glasgow (N=256)		Dunbarton (N=119)		Renfrew (N=25)	
Topic	Mean Rank	Order	Mean Rank	Order	Mean Rank	Order
Hygiene & Cleanliness	2.73	1	3.19	1	3.61	1
Food & Nutrition	4.05	2	3.84	2	4.46	2
*General Body Knowledge	5.67	3	5.41	3	6.91	8
Exercise and Rest	6.27	4	5.96	4	5.04	3
Safety & the Out-of-Doors	6.73	7	6.59	6	5.30	4
Safety & First Aid	6.40	5	7.11	8	6.62	6
Smoking	6.61	6	7.16	9	6.48	5
Growth & Development	7.00	8	6.21	5	7.46	10
Relationships	7.53	9	6.97	7	6.70	7
Drugs	8.32	10	9.14	11	10.04	11
Pollution	9.45	12	9.07	10	7.13	9
Alcohol	9.14	11	9.49	12	10.44	12
Sex Education	10.58	13	10.72	13	11.48	13

W = 0.977

* Largest difference in rank order was for 'General Body Knowledge'.

Table 3.29 RANKING OF HEALTH TOPICS, BY LEVEL OF DEPRIVATION

	Level of deprivation									
	1 (N=72)		2 (N=47)		3 (N=120)		4 (N=58)		5 (N=103)	
Topic	Mean Rank	Order	Mean Rank	Order	Mean Rank	Order	Mean Rank	Order	Mean Rank	Order
Hygiene & Cleanliness	3.3	1	3.2	1	3.0	1	2.8	1	2.6	1
Food & Nutrition	3.8	2	3.6	2	4.2	2	3.4	2	4.4	2
General Body Knowledge	6.2	4	6.1	5	5.0	3	5.7	3	5.8	3
Exercise and Rest	5.7	3	6.3	6	6.2	4	6.1	4	6.3	5
Safety & the Out-of-Doors	6.2	5	5.9	4	6.4	5	6.7	6	7.4	8
Safety & First Aid	6.8	9	5.6	3	6.7	7	6.6	5	6.8	6
Smoking	6.7	6	7.1	8	6.9	8	7.4	8	6.1	4
Growth & Development	6.8	8	6.8	7	6.5	6	7.0	7	7.0	7
Relationships	6.8	7	7.5	9	7.4	9	7.5	9	7.5	9
Drugs	9.2	11	8.6	10	9.3	12	8.3	10	7.7	10
Pollution	8.5	10	9.4	11	9.1	10	9.1	11	9.7	12
Alcohol	10.0	12	9.5	12	9.2	11	9.5	12	8.8	11
Sex Education	10.9	13	10.6	13	11.0	13	10.8	13	10.1	13

W = 0.93

* Largest difference in rank order was for 'Safety and First Aid'.

Table 3.30 TEACHING OF HEALTH EDUCATION IN 1982 AND 1986

	Teaching health education					
	Yes		No		TOTAL	
Year	N	(%)	N	(%)	N	(%)
1982/83	407	(90.0)	45	(10.0)	452	(100.0)
1985/86	318	(89.3)	38	(10.7)	356	(100.0)
TOTAL	725	(89.7)	83	(10.3)	808	(100.0)

$X^2 = 0.11$ df = 1 p = 0.74

Table 3.31 TEACHING ABOUT DIET IN 1982 AND 1986

	Teaching about diet					
	Yes		No		TOTAL	
Year	N	(%)	N	(%)	N	(%)
1982/83	335	(74.1)	117	(25.9)	452	(100.0)
1985/86*	284	(81.1)	66	(18.9)	350	(100.0)
TOTAL	619	(77.2)	183	(22.8)	802	(100.0)

* Data missing for 6 cases

$X^2 = 5.53$ df = 1 p = 0.019

Table 3.32 TEACHING ABOUT SMOKING IN 1982 AND 1986

	Teaching about smoking					
	Yes		No		TOTAL	
Year	N	(%)	N	(%)	N	(%)
1982/83	286	(63.3)	166	(36.7)	452	(100.0)
1985/86*	256	(73.1)	94	(26.9)	350	(100.0)
TOTAL	542	(67.6)	260	(32.4)	802	(100.0)

* Data missing for 6 cases

$X^2 = 8.77$ df = 1 p = 0.003

Table 3.33 TEACHING ABOUT ALCOHOL IN 1982 AND 1986

	Teaching about alcohol					
	Yes		No		TOTAL	
Year	N	(%)	N	(%)	N	(%)
1982/83	94	(20.8)	358	(79.2)	452	(100.0)
1985/86*	130	(37.1)	220	(62.8)	350	(100.0)
TOTAL	224	(27.9)	578	(72.1)	802	(100.0)

* Data missing for 6 cases

$X^2 = 26.18$ df = 1 $p < 0.001$

Table 3.34 TEACHING ABOUT DRUGS IN 1982 AND 1986

	Teaching about drugs					
	Yes		No		TOTAL	
Year	N	(%)	N	(%)	N	(%)
1982/83	78	(17.3)	374	(82.7)	452	(100.0)
1985/86*	160	(45.7)	190	(54.3)	350	(100.0)
TOTAL	238	(29.7)	564	(70.3)	802	(100.0)

* Data missing for 6 cases

$X^2 = 76.55$ df = 1 $p < 0.001$

Table 3.35 TEACHING ABOUT GLUE-SNIFFING IN 1982 AND 1986

	Teaching about glue-sniffing					
	Yes		No		TOTAL	
Year	N	(%)	N	(%)	N	(%)
1982/83	171	(37.8)	281	(62.2)	452	(100.0)
1985/86*	142	(40.6)	208	(59.4)	350	(100.0)
TOTAL	313	(39.0)	489	(61.0)	802	(100.0)

* Data missing for 6 cases

$X^2 = 0.62$ df = 1 p = 0.431

Table 3.36 METHODS USED FOR HEALTH EDUCATION IN 1982 AND 1986

	Year			
	1982/83		1985/86	
Method	N*	(%)	N**	(%)
Incidental Only	139	(35.5)	82	(26.0)
Centre-of-Interest Only	105	(26.8)	82	(26.0)
Incidental + Centre-of-Interest	49	(12.5)	57	(18.1)
School's Own Scheme Only	21	(5.4)	18	(5.7)
Incidental + School's Own Scheme	15	(3.8)	19	(6.0)
Centre-of-Interest + School's Own Scheme	8	(2.0)	16	(5.1)
Incidental + Centre-of-Interest + School's Own Scheme	4	(1.0)	16	(5.1)
Other Combination	50	(12.8)	25	(7.9)

%s are % of class teachers who taught some health education

N (1982/83) = 407
N (1985/86) = 318

* Data missing for 16 cases
** Data missing for 3 cases

Table 3.37 INCIDENTAL TEACHING ONLY IN 1982 AND 1986

Year	Incidental teaching only: Yes N	(%)	No N	(%)	TOTAL N	(%)
1982/83	139	(35.6)	252	(64.4)	391	(100.0)
1985/86	82	(26.0)	233	(74.0)	315	(100.0)
TOTAL	221	(31.3)	485	(68.7)	706	(100.0)
$X^2 = 7.35$			df = 1		p = 0.007	

Table 3.38 INCIDENTAL TEACHING TOGETHER WITH THE CENTRE-OF-INTEREST METHOD IN 1982 AND 1986

Year	Incidental + Centre-of-Interest: Yes N	(%)	No N	(%)	TOTAL N	(%)
1982/83	49	(12.5)	342	(87.5)	391	(100.0)
1985/86	57	(18.1)	258	(81.9)	315	(100.0)
TOTAL	106	(15.0)	600	(85.0)	706	(100.0)
$X^2 = 4.23$			df = 1		p = 0.040	

Table 3.39 CENTRE-OF-INTEREST TEACHING ONLY IN 1982 AND 1986

Year	Centre-of-Interest only: Yes N	Yes (%)	No N	No (%)	TOTAL N	TOTAL (%)
1982/83	105	(26.8)	286	(73.2)	391	(100.0)
1985/86	82	(26.0)	233	(74.0)	315	(100.0)
TOTAL	187	(26.5)	519	(73.5)	706	(100.0)

$X^2 = 0.06$ df = 1 p = 0.807

Table 3.40 MATERIALS USED FOR HEALTH EDUCATION IN 1982 AND 1986

Material	Year: 1982/83 N	1982/83 (%)	1985/86 N*	1985/86 (%)
Schools Council	11	(2.7)	5	(1.6)
Billy Hughes	35	(8.6)	24	(7.5)
Education for Healthy Living[b]	81	(19.9)	29	(9.1)
Jimmy on the Road to Super Health[a]	136	(33.4)	141	(44.3)
Good Health	53	(13.0)	62	(19.5)
Health Education for Schools	4	(1.0)	1	(0.3)
Health Leaflets	94	(23.1)	100	(31.4)
Television[c]	110	(27.0)	126	(39.6)
Other	126	(31.0)	125	(39.3)

* Data missing for 2 cases

%s are % of class teachers who taught some health education

N (1982/83) = 407
N (1985/86) = 318

a) $X^2 = 7.10$ df = 1 p = 0.008
b) $X^2 = 17.71$ df = 1 p < 0.001
c) $X^2 = 10.83$ df = 1 p < 0.001

Table 4.1 DISTRIBUTION OF RESPONSE, BY SCHOOL

School code	Primary 6			Primary 7		
	N^{TOT}	N^{RESP}	Response rate %	N^{TOT}	N^{RESP}	Response rate %
101	31	30	96.8	36	33	91.7
102	44	44	100.0	44	42	95.4
104	50	49	98.0	52	47	90.4
105	37	29	78.4	38	34	89.5
106	5	4	80.0	4	3	75.0
107	3	3	100.0	1	1	100.0
108	33	29	87.9	34	33	97.1
201	28	28	100.0	30	29	96.7
202	18	14	77.8	18	17	94.4
203	35	34	97.1	35	35	100.0
205	35	33	94.3	35	34	97.1
206	48	45	93.8	46	39	84.8
207	20	15	75.0	17	16	94.1
301	52	48	92.3	57	44	77.2
302	35	35	100.0	36	35	97.2
304	54	49	90.7	53	51	96.2
305	30	27	90.0	31	30	96.8
306	25	21	84.0	33	28	84.8
307	26	24	92.3	26	26	100.0
308	41	35	85.4	41	37	90.2
401	29	27	93.1	31	30	96.8
402	24	24	100.0	23	21	91.3
403	8	7	87.5	9	8	88.9
404	12	8	66.7	11	8	72.7
405	16	15	93.8	15	11	73.3
406	19	18	94.7	17	14	82.4
407	22	21	95.4	20	17	85.0
408	16	15	93.8	16	15	93.8
501	19	17	89.5	17	14	82.4
502	22	22	100.0	20	17	85.0
503	45	41	91.1	47	42	89.4
504	45	41	91.1	39	32	82.0
505	24	23	95.8	22	19	86.4
506	42	35	83.3	42	32	76.2
508	14	10	71.4	12	11	91.7
TOTAL	1007	920	91.4	1008	905	89.8

N^{TOT} = Number of pupils in this stage on the school roll

N^{RESP} = Number of pupils in this stage who completed a questionnaire

Table 4.2 AGE AND SEX DISTRIBUTION

Age	Primary 6		Primary 7*	
	Boys	Girls	Boys	Girls
9	1	1	-	-
10	401	380	-	2
11	76	56	368	356
12	2	3	107	64
13	-	-	4	-
TOTAL	480(52.2%)	440(47.8%)	479(53.2%)	422(46.8%)

* Data missing for 4 cases

Table 4.3 DISTRIBUTION OF RESPONSE, BY INDEX OF DEPRIVATION

Level of deprivation	Primary 6		Primary 7*	
	N	(%)	N	(%)
1 'Low'	188	(20.4)	193	(21.3)
2	169	(18.4)	170	(18.8)
3	239	(26.0)	251	(27.7)
4	135	(14.7)	124	(13.7)
5 'High'	189	(20.5)	167	(18.4)
TOTAL	920	(100.0)	905	(100.0)

Table 4.4(a) SOCIAL CLASS DISTRIBUTION - FATHER'S OCCUPATION

Occupational category	N*	%
Nonmanual work	150	16.7
Manual work	368	41.1
Unemployed	203	22.7
Student	3	0.3
Disabled	14	1.6
No Father	94	10.5
Unclassifiable	64	7.1
TOTAL	896	100.0

* Data missing for 9 cases

Table 4.4(b) SOCIAL CLASS DISTRIBUTION - MOTHER'S OCCUPATION

Occupational category	N*	%
Nonmanual work	218	24.4
Manual work	224	25.1
Unemployed	171	19.1
Housewife	226	25.3
Student	5	0.6
Disabled	3	0.3
No Mother	9	1.0
Unclassifiable	38	4.2
TOTAL	894	100.0

* Data missing for 11 cases

Table 4.5 CROSSTABULATION OF INDEX OF DEPRIVATION WITH FATHER'S OCCUPATION

Occupational category	Level of deprivation 1 N(%)	2 N(%)	3 N(%)	4 N(%)	5 N(%)	TOTAL N(%)
Nonmanual	84(43.5)	26(15.3)	31(12.4)	7 (5.7)	2 (1.2)	150(16.6)
Manual	66(34.2)	63(37.1)	110(43.8)	56(45.2)	73(43.7)	368(40.7)
Unemployed	13 (6.7)	44(25.9)	61(24.3)	36(29.0)	49(29.3)	203(22.4)
Other	30(15.5)	37(21.8)	49(19.5)	25(20.2)	43(25.7)	184(20.3)
TOTAL	193(100.0)	170(100.0)	251(100.0)	124(100.0)	167(100.0)	905(100.0)

$X^2 = 157.63$ df = 12 $p < 0.001$

Table 4.6 BELIEFS ABOUT BEHAVIOURAL INFLUENCES ON HEALTH

a) READING BOOKS

Effect on health	Primary 6 Boys N(%)	Primary 6 Girls N(%)	Primary 6 TOTAL* N(%)	Primary 7 Boys N(%)	Primary 7 Girls N(%)	Primary 7 TOTAL** N(%)
Very good	60(12.7)	62(14.4)	122(13.5)	40 (8.4)	31 (7.4)	71 (7.9)
Quite good	106(22.4)	106(24.7)	212(23.5)	76(15.9)	79(18.8)	155(17.3)
No effect	295(62.4)	253(58.8)	548(60.7)	335(70.1)	295(70.2)	630(70.2)
Quite bad	9 (1.9)	9 (2.1)	18 (2.0)	25 (5.2)	13 (3.1)	38 (4.2)
Very bad	3 (0.6)	- (0.0)	3 (0.3)	2 (0.4)	2 (0.5)	4 (0.4)
TOTAL	473(100.0)	430(100.0)	903(100.0)	478(100.0)	420(100.0)	898(100.0)

* Data missing for 17 cases

** Data missing for 7 cases

$X^2 = 4.21$ df = 4 p = 0.378 $X^2 = 3.80$ df = 4 p = 0.434

b) EXERCISE

Effect on health	Primary 6 Boys N(%)	Primary 6 Girls N(%)	Primary 6 TOTAL* N(%)	Primary 7 Boys N(%)	Primary 7 Girls N(%)	Primary 7 TOTAL** N(%)
Very good	395(83.9)	330(77.6)	725(80.9)	406(85.5)	347(82.8)	753(84.2)
Quite good	66(14.0)	71(16.7)	137(15.3)	59(12.4)	69(16.5)	128(14.3)
No effect	8 (1.7)	19 (4.5)	27 (3.0)	7 (1.5)	3 (0.7)	10 (1.1)
Quite bad	2 (0.4)	4 (0.9)	6 (0.7)	2 (0.4)	- (0.0)	2 (0.2)
Very bad	- (0.0)	1 (0.2)	1 (0.1)	1 (0.2)	- (0.0)	1 (0.1)
TOTAL	471(100.0)	425(100.0)	896(100.0)	475(100.0)	419(100.0)	894(100.0)

* Data missing for 24 cases

** Data missing for 9 cases

$X^2 = 9.82$ df = 4 p = 0.044 $X^2 = 6.52$ df = 4 p = 0.163

c) SMOKING

Effect on health	Primary 6 Boys N(%)	Primary 6 Girls N(%)	Primary 6 TOTAL* N(%)	Primary 7 Boys N(%)	Primary 7 Girls N(%)	Primary 7 TOTAL** N(%)
Very good	4 (0.9)	1 (0.2)	5 (0.6)	1 (0.2)	- (0.0)	1 (0.1)
Quite good	1 (0.2)	1 (0.2)	2 (0.2)	1 (0.2)	- (0.0)	1 (0.1)
No effect	12 (2.6)	4 (0.9)	16 (1.8)	2 (0.4)	1 (0.2)	3 (0.3)
Quite bad	11 (2.4)	12 (2.8)	33 (3.6)	14 (3.0)	6 (1.4)	20 (2.2)
Very bad	440(94.0)	413(95.8)	853(93.8)	454(96.2)	412(98.3)	866(97.2)
TOTAL	468(100.0)	431(100.0)	909(100.0)	472(100.0)	419(100.0)	891(100.0)

* Data missing for 11 cases ** Data missing for 4 cases

$X^2 = 5.18$ df = 4 p = 0.269 $X^2 = 4.43$ df = 4 p = 0.350

d) EATING LOTS OF SWEETS

Effect on health	Primary 6 Boys N(%)	Primary 6 Girls N(%)	Primary 6 TOTAL* N(%)	Primary 7 Boys N(%)	Primary 7 Girls N(%)	Primary 7 TOTAL* N(%)
Very good	11 (2.4)	1 (0.2)	12 (1.3)	5 (1.1)	- (0.0)	5 (0.6)
Quite good	3 (0.6)	10 (2.3)	13 (1.5)	3 (0.6)	2 (0.5)	5 (0.6)
No effect	27 (5.8)	16 (3.7)	43 (4.8)	17 (3.6)	11 (2.7)	28 (3.2)
Quite bad	281(60.2)	251(58.6)	532(59.4)	313(66.2)	242(58.3)	555(62.5)
Very bad	145(31.0)	150(35.0)	295(33.0)	135(28.5)	160(38.6)	295(33.2)
TOTAL	467(100.0)	428(100.0)	895(100.0)	473(100.0)	415(100.0)	888(100.0)

* Data missing for 25 cases ** Data missing for 17 cases

$X^2 = 15.02$ df = 4 p = 0.005 $X^2 = 13.96$ df = 4 p = 0.007

e) PLAYING A MUSICAL INSTRUMENT

Effect on health	Primary 6 Boys N(%)	Primary 6 Girls N(%)	Primary 6 TOTAL* N(%)	Primary 7 Boys N(%)	Primary 7 Girls N(%)	Primary 7 TOTAL** N(%)
Very good	32 (6.9)	35 (8.3)	67 (7.6)	23 (4.9)	21 (5.1)	44 (5.0)
Quite good	103(22.2)	92(21.7)	195(22.0)	91(19.3)	66(15.9)	157(17.7)
No effect	312(67.4)	279(65.8)	591(66.6)	345(73.1)	310(74.7)	655(73.8)
Quite bad	12 (2.6)	15 (3.5)	27 (3.0)	9 (1.9)	15 (3.6)	23 (2.6)
Very bad	4 (0.9)	3 (0.7)	7 (0.8)	5 (1.1)	3 (0.7)	8 (0.9)
TOTAL	463(100.0)	424(100.0)	887(100.0)	472(100.0)	415(100.0)	887(100.0)
	* Data missing for 33 cases			** Data missing for 18 cases		
	$X^2 = 1.36$	df = 4	p = 0.851	$X^2 = 4.93$	df = 4	p = 0.29

f) GOING TO BED LATE AND MISSING OUT ON SLEEP

Effect on health	Primary 6 Boys N(%)	Primary 6 Girls N(%)	Primary 6 TOTAL* N(%)	Primary 7 Boys N(%)	Primary 7 Girls N(%)	Primary 7 TOTAL** N(%)
Very good	8 (1.7)	4 (0.9)	12 (1.3)	5 (1.1)	1 (0.2)	6 (0.7)
Quite good	9 (1.9)	7 (1.6)	16 (1.8)	6 (1.3)	1 (0.2)	7 (0.8)
No effect	48(10.3)	23 (5.4)	71 (7.9)	27 (5.7)	19 (4.5)	46 (5.2)
Quite bad	276(59.1)	236(55.0)	512(57.1)	327(69.0)	256(61.2)	583(65.4)
Very bad	126(27.0)	159(37.1)	285(31.8)	109(23.0)	141(33.7)	250(28.0)
TOTAL	467(100.0)	429(100.0)	896(100.0)	474(100.0)	418(100.0)	892(100.0)
	* Data missing for 24 cases			** Data missing for 13 cases		
	$X^2 = 15.75$	df = 4	p = 0.003	$X^2 = 16.92$	df = 4	p = 0.002

g) FORGETTING TO BRUSH YOUR TEETH

Effect on health	Primary 6 Boys N(%)	Primary 6 Girls N(%)	Primary 6 TOTAL* N(%)	Primary 7 Boys N(%)	Primary 7 Girls N(%)	Primary 7 TOTAL** N(%)
Very good	7 (1.5)	7 (1.6)	14 (1.6)	13 (2.7)	4 (1.0)	17 (1.9)
Quite good	9 (1.9)	5 (1.2)	14 (1.6)	3 (0.6)	- (0.0)	3 (0.3)
No effect	30 (6.4)	29 (6.8)	59 (6.6)	27 (5.7)	26 (6.2)	53 (5.9)
Quite bad	200(42.8)	165(38.6)	365(40.8)	266(55.8)	243(57.7)	509(56.7)
Very bad	221(47.3)	222(51.9)	443(49.5)	168(35.2)	148(35.2)	316(35.2)
TOTAL	467(100.0)	428(100.0)	895(100.0)	477(100.0)	421(100.0)	898(100.0)

* Data missing for 25 cases

** Data missing for 7 cases

X^2 = 2.82 df = 4 p = 0.588

X^2 = 6.62 df = 4 p = 0.157

Table 4.7 PERCEPTIONS OF OWN HEALTH STATE

Health state	Primary 6 Boys	Primary 6 Girls	Primary 6 TOTAL* N	Primary 6 TOTAL* (%)	Primary 7 Boys	Primary 7 Girls	Primary 7 TOTAL** N	Primary 7 TOTAL** (%)
I feel fine	302	298	600	(66.3)	339	305	644	(71.7)
I often feel tired	99	72	171	(18.9)	78	53	131	(14.6)
I often have pains	54	54	108	(11.9)	41	51	92	(10.2)
I don't feel healthy just now	9	10	19	(2.1)	16	11	27	(3.0)
I'm not healthy	6	1	7	(0.7)	4	-	4	(0.4)
TOTAL	470	435	905	(100.0)	478	420	898	(100.0)

* Data missing for 15 cases

** Data missing for 7 cases

X^2 = 6.57 df = 4 p = 0.160

X^2 = 8.87 df = 4 p = 0.064

Table 4.8 CROSSTABULATION OF OWN HEALTH STATE WITH FATHER'S OCCUPATION

Health state	Nonmanual N(%)	Manual N(%)	Unemployed N(%)	Other N(%)	TOTAL N(%)
I feel fine	106(70.7)	256(69.8)	145(71.8)	134(77.5)	641(71.9)
I often feel tried	30(20.0)	52(14.2)	30(14.9)	19(11.0)	131(14.7)
I often have pains	12 (8.0)	47(12.8)	17 (8.4)	14 (8.1)	90(10.1)
I don't feel healthy just now	2 (1.3)	10 (2.7)	9 (4.5)	5 (2.9)	26 (2.9)
I'm not healthy	- (0.0)	2 (0.5)	1 (0.5)	1 (0.6)	4 (0.4)
TOTAL	150(100.0)	367(100.0)	202(100.0)	173(100.0)	419(100.0) 892(100.0)

Data missing for 15 cases

$X^2 = 13.96$ df = 12 p = 0.303

Table 4.9 CONCEPTS OF HEALTH EXPRESSED BY CHILDREN IN PRIMARY 6

CONCEPT	1st stated* N(%)	2nd stated N(%)	3rd stated N(%)	TOTAL N(%)
Happiness	473(52.0)	72(13.4)	17(12.2)	562(35.5)
Energy	151(16.6)	101(18.8)	38(27.3)	290(18.3)
Activity	32 (3.5)	85(15.9)	14(10.1)	131 (8.3)
Power	42 (4.6)	57(10.6)	22(15.8)	121 (7.6)
Freshness	59 (6.5)	48 (9.0)	9 (6.5)	116 (7.3)
Absence of disease	8 (0.8)	35 (6.5)	6 (4.3)	49 (3.1)
Absence of mild symptoms	18 (2.0)	30 (5.6)	8 (5.8)	56 (3.5)
Negative concept	1 (0.1)	17 (3.2)	3 (2.2)	21 (1.3)
Other	126(13.8)	91(17.0)	22(15.8)	239(15.1)
TOTAL	910(100.0)	536(100.0)	139(100.0)	1585(100.0)

* Data missing for 10 cases

Table 4.10 CONCEPTS OF HEALTH EXPRESSED BY CHILDREN IN PRIMARY 7

CONCEPT	1st stated* N(%)	2nd stated N(%)	3rd stated N(%)	TOTAL N(%)
Happiness	476(53.1)	63(10.8)	18(11.6)	557(34.1)
Energy	135(15.1)	135(23.2)	21(13.5)	291(17.8)
Activity	19 (2.1)	84(14.4)	12 (7.7)	115 (7.0)
Power	34 (3.8)	74(12.7)	23(14.8)	131 (8.0)
Freshness	60 (6.7)	47 (8.1)	6 (3.9)	113 (6.9)
Absence of disease	3 (0.3)	21 (3.6)	18(11.6)	42 (2.6)
Absence of mild symptoms	13 (1.4)	33 (5.7)	20(12.9)	66 (4.0)
Negative concept	- (0.0)	12 (2.1)	2 (1.3)	14 (0.9)
Other	156(17.4)	113(19.4)	35(22.6)	304(18.6)
TOTAL	896(100.0)	582(100.0)	155(100.0)	1633(100.0)

Table 4.11 SEX DIFFERENCES IN CONCEPTS OF HEALTH

	Primary 6		Primary 7	
CONCEPT	Boys N(%)	Girls N(%)	Boys N(%)	Girls N(%)
Happiness	277(34.3)	285(36.7)	283(34.0)	274(34.2)
Energy	139(17.2)	151(19.4)	132(15.9)	159(19.8)
Activity	78 (9.6)	53 (6.8)	72 (8.6)	43 (5.4)
Power	73 (9.0)	48 (6.2)	77 (9.3)	54 (6.7)
Freshness	46 (5.7)	70 (9.0)	37 (4.4)	76 (9.5)
Absence of disease	23 (2.8)	26 (3.3)	17 (2.0)	25 (3.1)
Absence of mild symptoms	26 (3.2)	30 (3.9)	30 (3.6)	36 (4.5)
Negative concept	8 (1.0)	13 (1.7)	9 (1.1)	5 (0.6)
Other	138(17.1)	101(13.0)	175(21.0)	129(16.1)
TOTAL	808(100.0)	777(100.0)	832(100.0)	801(100.0)
	$X^2 = 22.3$ df = 8 p = 0.004		$X^2 = 37.06$ df = 8 p<0.001	

Table 4.12 CROSSTABULATION OF SEX WITH DISCUSSIONS ABOUT HEALTH

		Primary 6 Boys %	Primary 6 Girls %		Primary 7 Boys %	Primary 7 Girls %	
DISCUSSIONS	Frequently	11.9	13.4	x2=7.56	13.7	14.2	x2=14.76
WITH	Sometimes	64.4	70.2	df=2	62.6	72.0	df=2
PARENTS	Not at all	23.7	16.4	p=0.023	23.7	13.7	p=0.001
DISCUSSIONS	Frequently	14.9	9.7	x2=10.64	9.0	8.9	x2=9.98
WITH	Sometimes	36.9	46.9	df=2	40.1	50.6	df=2
SIBLINGS	Not at all	48.2	43.4	p=0.005	50.9	40.5	p=0.007
DISCUSSIONS	Frequently	15.8	9.4	x2=20.22	9.3	10.7	x2=21.51
WITH	Sometimes	32.9	46.3	df=2	40.2	54.0	df=2
FRIENDS	Not at all	51.3	44.3	p<0.001	50.5	35.3	p<0.001

Table 4.13 CROSSTABULATION OF SOCIAL CLASS BACKGROUND WITH DISCUSSIONS ABOUT HEALTH

		Father's Occupation: Nonmanual %	Manual %	Unemployed %	Other %	
DISCUSSIONS	Frequently	15.4	11.2	16.4	15.5	x2=12.66
WITH	Sometimes	69.8	68.1	60.2	71.3	df=6
PARENTS	Not at all	14.8	20.7	23.4	13.2	p=0.049
DISCUSSIONS	Frequently	7.3	7.5	10.4	11.6	x2=7.27
WITH	Sometimes	48.6	43.4	42.5	50.0	df=6
SIBLINGS	Not at all	44.2	49.1	47.2	38.4	p=0.295
DISCUSSIONS	Frequently	9.4	8.2	14.9	8.6	x2=23.50
WITH	Sometimes	55.7	46.0	35.3	54.6	df=6
FRIENDS	Not at all	34.9	45.8	49.8	36.8	p=0.001

Table 4.14 SELF-REPORTED CIGARETTE SMOKING BEHAVIOUR

Smoking behaviour	Primary 6 Boys N(%)	Primary 6 Girls N(%)	Primary 6 TOTAL* N(%)	Primary 7 Boys N(%)	Primary 7 Girls N(%)	Primary 7 TOTAL* N(%)
I have never smoked a cig	354(74.5)	338(77.7)	692(76.0)	291(61.0)	262(62.5)	553(61.6)
I have only tried smoking once	76(16.0)	71(16.3)	147(16.2)	114(23.9)	101(24.1)	215(24.0)
I used to smoke sometimes but I don't now	40 (8.4)	25 (5.7)	65 (7.1)	58(12.2)	49(11.7)	107(11.9)
I smoke sometimes but <1 cig a week	4 (0.8)	- (0.0)	4 (0.4)	2 (0.4)	4 (1.0)	6 (0.7)
I smoke between 1 & 6 cig/week	- (0.0)	1 (0.3)	1 (0.1)	8 (1.7)	3 (0.7)	11 (1.2)
I smoke > 6 cig/ week	1 (0.2)	- (0.0)	1 (1.0)	4 (0.8)	- (0.0)	5 (0.6)
TOTAL	475(100.0)	435(100.0)	910(100.0)	477(100.0)	419(100.0)	897(100.0)

* Data missing for 10 cases
** Data missing for 8 cases

Table 4.15 NUMBER OF CIGARETTES SMOKED SINCE THIS TIME YESTERDAY

Number of cigarettes	Primary 6 Ever smoked? Yes	Primary 6 Ever smoked? No	Primary 7 Ever smoked? Yes	Primary 7 Ever smoked? No
None	100	452	305	551
1	22	2	15	
2	3	-	6	
3	2	1	3	
4	1		3	
5	-		-	
6	1		1	
7	-		-	
8	-		-	
9	-		-	
10	2		2	
11-20	-		-	
> 20	-		1	

Number of cigarettes	Primary 6 Ever smoked? Yes	No	Primary 7 Ever smoked? Yes	No
None	103	449	308	551
1	8	-	9	
2	1	1	4	
3	2		3	
4	-		2	
5	2		-	
6	-		4	
7	1		1	
8	-		-	
9	-		-	
10	1		2	
11-20	1		2	
> 20	1		2	

Table 4.17 INTENTION FOR FUTURE SMOKING BEHAVIOUR

Age when expected to become a regular smoker	Primary 6 Boys N(%)	Girls N(%)	TOTAL* N(%)	Primary 7 Boys N(%)	Girls N(%)	TOTAL** N(%)
<16 years old	20 (4.2)	11 (2.5)	31 (3.4)	17 (3.6)	10 (2.4)	27 (3.0)
16-20 years old	34 (7.2)	21 (4.8)	55 (6.1)	43 (9.0)	45(10.6)	88 (9.8)
20-30 years old	21 (4.4)	22 (5.1)	43 (4.7)	14 (2.9)	8 (1.9)	22 (2.4)
>30 years old	3 (0.6)	7 (1.6)	10 (1.1)	11 (2.3)	4 (0.9)	15 (1.7)
Never	397(83.6)	372(85.9)	769(84.7)	391(82.1)	356(84.2)	747(83.1)
TOTAL	475(100.0)	433(100.0)	908(100.0)	476(100.0)	423(100.0)	898(100.0)

* Data missing for 12 cases

$X^2 = 6.19$ df = 4 p = 0.185

** Data missing for 6 cases

$X^2 = 5.30$ df = 4 p = 0.258

Table 4.18 CROSSTABULATION OF INTENTION TO SMOKE WITH CURRENT SMOKING BEHAVIOUR

	Primary 6			Primary 7		
	Ever smoked?			Ever smoked?		
Intend to be a regular smoker	Yes N(%)	No N(%)	TOTAL* N(%)	Yes N(%)	No N(%)	TOTAL* N(%)
Yes	61(28.6)	75(10.9)	136(15.1)	91(26.6)	60(10.9)	151(16.9)
No	152(71.4)	612(89.1)	764(84.9)	251(73.4)	492(89.1)	743(83.1)
TOTAL	213(100.0)	687(100.0)	900(100.0)	342(100.0)	552(100.0)	894(100.0)
	* Data missing for 20 cases			** Data missing for 9 cases		
	X^2 = 39.81	df = 1	p< 0.001	X^2 = 37.26	df = 1	p< 0.001

Table 4.19 KNOWLEDGE ABOUT THE HEALTH EFFECTS OF SMOKING

	Primary 6			Primary 7		
Effect of smoking	True N(%)	False N(%)	Don't know N(%)	True N(%)	False N(%)	Don't know N(%)
Out of breath	560(61.6)	72 (7.9)	277(30.5)	619(68.6)	50 (5.5)	233(25.8)
Dandruff	37 (4.1)	600(66.1)	271(29.8)	32 (3.6)	567(62.9)	302(33.5)
Cough	836(92.0)	14 (1.5)	59 (6.5)	838(92.7)	17 (1.9)	49 (5.4)
Bronchitis	766(84.2)	20 (2.2)	124(13.6)	731(81.4)	23 (2.6)	144(16.0)
Heart disease	748(81.9)	13 (1.4)	152(16.6)	758(84.1)	22 (2.4)	121(13.4)
Lung cancer	875(96.0)	8 (0.9)	28 (3.1)	886(98.2)	5 (0.6)	11 (1.2)

Tables 4.20 CROSSTABULATION OF SEX WITH KNOWLEDGE THAT SMOKING CAN CAUSE BREATHLESSNESS

	Primary 6						Primary 7					
	Boys		Girls		TOTAL*		Boys		Girls		TOTAL**	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
True	312	(65.7)	248	(57.1)	560	(61.6)	353	(73.7)	265	(62.8)	618	(68.6)
False/ Don't know	163	(34.3)	186	(42.9)	349	(38.4)	126	(26.3)	157	(37.2)	283	(31.4)
TOTAL	475	(100.0)	434	(100.0)	909	(100.0)	479	(100.0)	422	(100.0)	901	(100.0)

* Data missing for 11 cases

$X^2 = 7.00$ df = 1 p = 0.008

** Data missing for 4 cases

$X^2 = 12.37$ df = 1 p<0.001

Table 4.21 ATTITUDES TOWARDS SMOKING

Attitude	Primary 6			Primary 7		
	Yes N(%)	No N(%)	Don't Know N(%)	Yes N(%)	No N(%)	Don't Know N(%)
Smoking is fun	12 (1.3)	823(90.3)	76 (8.3)	16 (1.8)	774(86.1)	109(12.1)
People of my age smoke to show off	657(72.2)	82 (9.0)	171(18.8)	742(82.3)	42 (4.7)	117(13.0)
Smoking calms your nerves	188(20.7)	394(43.3)	328(36.0)	201(22.4)	280(31.1)	418(46.5)
Smoking makes you smelly	721(79.4)	68 (7.5)	119(13.1)	759(84.8)	40 (4.5)	96(10.7)
Smoking makes you look tough	263(29.1)	500(55.3)	141(15.6)	217(24.2)	542(60.4)	138(15.4)
Smoking is a waste of money	852(93.7)	43 (4.7)	14 (1.5)	836(93.4)	37 (4.1)	22(22.5)
Smoking makes you feel grown-up	289(31.9)	351(38.7)	266(29.4)	258(28.7)	323(35.9)	318(35.4)
Smoking keeps your weight down	165(18.2)	376(41.5)	365(40.3)	123(13.7)	383(42.8)	389(43.5)
Smoking gives you confidence	66 (7.3)	461(50.8)	381(42.0)	52 (5.8)	445(49.3)	405(44.9)

Table 4.22 CROSSTABULATION OF SEX WITH ATTITUDES TOWARDS SMOKING

		Boys N	Boys (%)	Girls N	Girls (%)	
SMOKING MAKES YOU SMELLY (P6)	True	359	(76.1)	362	(83.0)	$X^2 = 6.73$
	False/ Don't know	113	(23.9)	74	(17.0)	df = 1 p = 0.010
SMOKING MAKES YOU FEEL GROWN-UP (P6)	True	135	(28.6)	154	(35.5)	$X^2 = 4.93$
	False/ Don't know	337	(71.4)	280	(64.5)	df = 1 p = 0.026
SMOKING CALMS YOUR NERVES (P7)	True	124	(26.0)	77	(18.2)	$X^2 = 7.84$
	False/ Don't know	352	(74.0)	345	(81.8)	df = 1 p = 0.005

Table 4.23 PERCEPTIONS OF SELF

	Primary 6 N (%)				Primary 7 N (%)			
Trait	Yes very	Yes a bit	Not very	Not at all	Yes very	Yes a bit	Not very	Not at all
Clever	140 (15.4)	617 (67.7)	127 (13.9)	27 (3.0)	113 (12.5)	611 (67.8)	158 (17.5)	19 (2.1)
Shy	80 (8.8)	201 (22.2)	234 (25.8)	391 (43.2)	62 (6.9)	234 (26.1)	232 (25.8)	370 (41.2)
Good at sports	427 (46.9)	333 (36.6)	102 (11.2)	48 (5.3)	361 (40.4)	380 (42.5)	125 (14.0)	28 (3.1)
Fashionable & trendy	192 (21.4)	377 (42.0)	210 (23.4)	118 (13.2)	212 (23.6)	453 (50.5)	170 (19.0)	62 (6.9)
Grown-up	228 (25.3)	357 (39.7)	210 (23.3)	105 (11.7)	211 (23.6)	399 (44.5)	215 (24.0)	71 (7.9)
Friendly	591 (64.9)	275 (30.2)	28 (3.1)	17 (1.9)	569 (63.1)	286 (31.7)	29 (3.2)	18 (2.0)

Table 4.24 PERCENTIONS OF NONSMOKERS

Trait	Primary 6 N (%) Yes very	Yes a bit	Not very	Not at all	Primary 7 N (%) Yes very	Yes a bit	Not very	Not at all
Clever	386 (42.4)	407 (44.7)	91 (10.0)	27 (3.0)	578 (64.4)	263 (29.3)	39 (4.3)	18 (2.0)
Shy	62 (6.9)	262 (29.0)	274 (30.4)	304 (33.7)	288 (32.1)	491 (54.7)	94 (10.5)	24 (2.7)
Good at sports	591 (64.9)	252 (27.7)	34 (3.7)	33 (3.6)	312 (34.7)	503 (56.0)	64 (7.1)	19 (2.1)
Fashionable & trendy	299 (32.9)	433 (47.6)	123 (13.5)	55 (6.0)	679 (75.5)	158 (17.6)	43 (4.8)	19 (2.1)
Grown-up	255 (28.0)	267 (29.3)	192 (21.1)	197 (21.6)	51 (5.7)	257 (28.7)	299 (33.4)	287 (32.1)
Friendly	688 (76.1)	128 (14.2)	60 (6.6)	28 (3.1)	272 (30.4)	330 (36.8)	198 (22.1)	96 (10.7)

Table 4.25 PERCEPTIONS OF SMOKERS

Trait	Primary 6 N (%) Yes very	Yes a bit	Not very	Not at all	Primary 7 N (%) Yes very	Yes a bit	Not very	Not at all
Clever	89 (10.2)	236 (26.9)	358 (40.9)	193 (22.0)	61 (7.0)	235 (26.9)	419 (48.0)	159 (18.2)
Shy	70 (7.9)	124 (14.0)	218 (24.5)	476 (53.6)	39 (4.4)	100 (11.3)	235 (26.6)	510 (57.7)
Good at sports	140 (15.8)	204 (23.0)	290 (32.7)	253 (28.5)	123 (13.9)	214 (24.2)	331 (37.4)	218 (24.6)
Fashionable & trendy	205 (23.0)	279 (31.3)	213 (23.9)	194 (21.8)	213 (23.9)	317 (35.6)	225 (25.3)	136 (15.3)
Grown-up	497 (56.8)	200 (22.9)	94 (10.7)	84 (9.6)	539 (61.2)	195 (22.2)	73 (8.3)	73 (8.3)
Friendly	131 (14.7)	294 (33.0)	282 (31.6)	184 (20.6)	152 (17.1)	300 (33.7)	315 (35.4)	122 (13.7)

Table 4.26 CROSSTABULATION OF SEX WITH PERCEPTIONS OF SELF

Peception of Self	Primary 6 Boys % Yes	Primary 6 Girls % Yes		Primary 7 Boys % Yes	Primary 7 Girls % Yes	
Clever at school	79.9	86.6	$X^2 = 7.24$ df = 1 p = 0.007	79.2	81.7	$X^2 = 0.92$ df = 1 p = 0.338
Shy	26.4	36.1	$X^2 = 10.02$ df = 1 p = 0.002	26.7	40.1	$X^2 = 18.31$ df = 1 p< 0.001
Good at sports	90.8	75.6	$X^2 = 38.00$ df = 1 p < 0.001	86.8	78.4	$X^2 = 11.06$ df = 1 p = 0.001
Fashionable & trendy	60.1	67.1	$X^2 = 4.73$ df = 1 p = 0.030	71.4	77.2	$X^2 = 3.95$ df = 1 p = 0.047
Friendly	92.2	98.2	$X^2 = 16.92$ df = 1 p < 0.001	92.5	97.4	$X^2 = 10.83$ df = 1 p = 0.001

Table 4.27 CROSSTABULATION OF SEX WITH PERCEPTIONS OF SMOKERS

Perception of Smokers	Primary 6 Boys % Yes	Primary 6 Girls % Yes		Primary 7 Boys % Yes	Primary 7 Girls % Yes	
Grown-up	74.3	85.5	$X^2 = 16.87$ df = 1 p = <0.001	81.1	85.9	$X^2 = 3.59$ df = 1 p = 0.058
Fashionable & trendy	49.7	59.5	$X^2 = 8.81$ df = 1 p = 0.003	54.2	65.3	$X^2 = 11.28$ df = 1 p = 0.001
Shy	25.4	18.0	$X^2 = 7.01$ df = 1 p = 0.008	17.6	13.7	$X^2 = 2.56$ df = 1 p = 0.110
Good at sports	41.2	36.2	$X^2 = 2.39$ df = 1 p = 0.122	41.8	33.7	$X^2 = 6.20$ df = 1 p = 0.013
Friendly	92.2	7.8	$X^2 = 0.179$ df = 1 p = 0.122	51.0	49.0	$X^2 = 0.01$ df = 1 p = 0.916
Clever at school	38.2	61.8	$X^2 = 0.46$ df = 1 p = 0.500	33.4	34.2	$X^2 = 0.06$ df = 1 p = 0.800

Table 4.28 CROSSTABULATION OF SEX WITH PERCEPTIONS OF NONSMOKERS

Perception of Smokers	Primary 6 Boys % Yes	Primary 6 Girls % Yes		Primary 7 Boys % Yes	Primary 7 Girls % Yes	
Fashionable & trendy	77.3	83.9	$X^2 = 6.21$ df = 1 p = 0.013	85.5	88.3	$X^2 = 1.56$ df = 1 p = 0.211
Shy	35.7	36.2	$X^2 = 0.03$ df = 1 p = 0.869	30.1	38.9	$X^2 = 6.80$ df = 1 p = 0.009
Good at sports	92.4	7.6	$X^2 = 0.05$ df = 1 p = 0.823	93.1	6.9	$X^2 = -.544$ df = 1 p = 0.461
Clever at school	86.7	13.3	$X^2 = 0.10$ df = 1 p = 0.751	88.9	11.1	$X^2 = 4.19$ df = 1 p = 0.041*
Friendly	88.6	11.4	$X^2 = 3.27$ df = 1 p = 0.070	92.5	7.5	$X^2 = 0.60$ df = 1 p = 0.440
Grown-up	59.6	40.4	$X^2 = 2.22$ df = 1 p = 0.136	69.9	30.1	$X^2 = 3.45$ df = 1 p = 0.063

* After Yates' correction, p = 0.054

Table 4.29 CROSSTABULATION OF SEX WITH DISCUSSIONS ABOUT SMOKING

		Primary 6 Boys % Yes	Primary 6 Girls % Yes	
DISCUSSIONS WITH PARENTS	Frequently	18.1	20.3	$X^2 = 3.82$
	Sometimes	52.1	55.6	df = 2
	Not at all	29.8	24.1	p = 0.148
DISCUSSIONS WITH SIBLINGS	Frequently	8.3	8.9	$X^2 = 7.23$
	Sometimes	23.9	31.8	df = 2
	Not at all	67.8	59.3	p = 0.027
DISCUSSIONS WITH FRIENDS	Frequently	6.3	8.2	$X^2 = 26.67$
	Sometimes	29.7	44.8	df = 2
	Not at all	63.9	47.0	p < 0.001

		Primary 7 Boys % Yes	Primary 7 Girls % Yes	
DISCUSSIONS WITH PARENTS	Frequently	19.5	20.0	$X^2 = 8.81$
	Sometimes	54.6	62.1	df = 2
	Not at all	25.9	17.9	p = 0.012
DISCUSSIONS WITH SIBLINGS	Frequently	6.4	9.4	$X^2 = 7.20$
	Sometimes	31.7	37.5	df = 2
	Not at all	62.0	53.2	p = 0.027
DISCUSSIONS WITH FRIENDS	Frequently	6.1	6.9	$X^2 = 31.17$
	Sometimes	33.7	51.2	df = 2
	Not at all	60.2	41.9	p < 0.001

Table 4.30 CROSSTABULATION OF SOCIAL CLASS BACKGROUND WITH DISCUSSIONS ABOUT SMOKING

		Father's occupation				
		Nonmanual	Manual	Unemployed	Other	
		%	%	%	%	
DISCUSSIONS WITH PARENTS	Frequently	13.3	21.9	18.4	22.4	$X^2 = 15.05$
	Sometimes	71.3	54.6	56.2	58.0	df = 6
	Not at all	15.3	23.5	25.4	19.5	p = 0.020
DISCUSSIONS WITH SIBLINGS	Frequently	4.3	8.1	10.3	7.4	$X^2 = 13.19$
	Sometimes	44.3	32.6	27.8	38.3	df = 6
	Not at all	51.4	59.3	61.9	54.4	p = 0.040
DISCUSSIONS WITH FRIENDS	Frequently	3.4	7.7	7.4	5.7	$X^2 = 18.77$
	Sometimes	53.7	40.8	32.5	46.0	df = 6
	Not at all	43.0	51.5	60.1	48.3	p = 0.005

Table 4.31 REASONS WHY A CHILD IN PRIMARY 6 WOULD BE A REGULAR SMOKER

Reason	N_1	(%)	N_2	(%)	N_{TOT}	(%)
Image	314	(35.2)	111	(44.2)	425	(37.2)
Friends	167	(18.7)	24	(9.6)	191	(16.7)
Enjoyment	99	(11.1)	22	(8.8)	121	(10.6)
Other people	74	(8.3)	11	(4.4)	85	(7.4)
Parents	57	(6.4)	14	(5.6)	71	(6.2)
To cope	49	(5.5)	6	(2.4)	55	(4.8)
Stupidity/ Ignorance	44	(4.9)	10	(4.0)	54	(4.7)
Forced to smoke	26	(2.9)	24	(9.6)	50	(4.4)
Addiction	36	(4.0)	11	(4.4)	47	(4.1)
Siblings	21	(2.4)	14	(5.6)	35	(3.1)
Other	6	(0.7)	4	(1.6)	10	(0.9)
TOTAL	893	(100.0)	251	(100.0)	1144	(100.0)

Where N_1 = No giving each as 1st-stated reason
N_2 = No giving each as 2nd-stated reason
$N_{TOT} = N_1 + N_2$

Table 4.32 REASONS WHY A CHILD IN PRIMARY 7 WOULD BE A REGULAR SMOKER

Reason	N_1	(%)	N_2	(%)	N_{TOT}	(%)
Image	447	(50.4)	154	(49.7)	601	(50.2)
Friends	146	(16.5)	49	(15.8)	195	(16.3)
Enjoyment	74	(8.4)	17	(5.5)	91	(7.6)
Other people	43	(4.8)	12	(3.9)	55	(4.6)
Parents	49	(5.5)	7	(2.3)	56	(4.7)
To cope	34	(3.8)	7	(2.3)	41	(3.4)
Stupidity/ Ignorance	25	(2.8)	9	(2.9)	34	(2.8)
Forced to smoke	13	(1.5)	22	(7.1)	35	(2.9)
Addiction	26	(2.9)	25	(8.1)	51	(4.3)
Siblings	27	(3.0)	6	(1.9)	33	(2.8)
Other	2	(0.2)	2	(0.6)	4	(0.3)
TOTAL	886	(100.0)	310	(100.0)	1196	(100.0)

Where N_1 = No giving each as 1st-stated reason
N_2 = No giving each as 2nd-stated reason
$N_{TOT} = N_1 + N_2$

Table 4.33 DISTRIBUTION OF TYPES OF 'IMAGE' OFFERED AS REASONS FOR BEING A REGULAR SMOKER

	Primary 6		Primary 7	
Type of image	N	(%)	N	(%)
To look tough	71	(16.7)	99	(16.5)
To show off	34	(8.0)	31	(5.2)
To look grown-up	223	(52.5)	338	(56.2)
To look cool/trendy	21	(4.9)	57	(9.5)
To look smart/clever	51	(12.0)	57	(9.5)
To look good	5	(1.2)	9	(1.5)
To look daring	20	(4.7)	10	(1.7)
TOTAL	425	(100.0)	601	(100.0)

Table 4.34 REASONS WHY A CHILD IN PRIMARY 6 WOULD NEVER SMOKE A CIGARETTE

Reason	N_1	(%)	N_2	(%)	N_{TOT}	(%)
Health effects	448	(50.4)	161	(60.1)	609	(52.6)
Care about health	137	(15.4)	15	(5.6)	152	(13.1)
It's dangerous	90	(10.1)	7	(2.6)	97	(8.4)
Don't like it	47	(5.3)	11	(4.1)	58	(5.0)
Know the facts	44	(4.9)	10	(3.7)	54	(4.7)
Not allowed	31	(3.5)	6	(2.2)	37	(3.2)
Don't want to	21	(2.4)	11	(4.1)	32	(2.8)
Fear of addiction	9	(1.0)	5	(1.9)	14	(1.2)
Cost	6	(0.7)	8	(3.0)	14	(1.2)
Smell	7	(0.8)	3	(1.1)	10	(0.9)
Others don't smoke	4	(0.4)	1	(0.4)	5	(0.4)
Passive smoking	-	(0.0)	2	(0.7)	2	(0.2)
Other	45	(5.1)	28	(10.4)	73	(6.3)
TOTAL	889	(100.0)	268	(100.0)	1157	(100.0)

Where N_1 = No giving each as 1st-stated reason
N_2 = No giving each as 2nd-stated reason
$N_{TOT} = N_1 + N_2$

Table 4.35 REASONS WHY A CHILD IN PRIMARY 7 WOULD NEVER SMOKE A CIGARETTE

Reason	N_1	(%)	N_2	(%)	N_{TOT}	(%)
Health effects	408	(46.0)	149	(52.3)	557	(47.6)
Care about health	118	(13.3)	27	(9.5)	145	(12.4)
It's dangerous	83	(9.4)	17	(6.0)	100	(8.5)
Don't like it	71	(8.0)	12	(4.2)	83	(7.1)
Know the facts	73	(8.2)	12	(4.2)	85	(7.3)
Not allowed	25	(2.8)	8	(2.8)	33	(2.8)
Don't want to	25	(2.8)	7	(2.5)	32	(2.7)
Fear of addiction	9	(1.0)	5	(1.7)	14	(1.2)
Cost	10	(1.1)	11	(3.9)	21	(1.8)
Smell	12	(1.4)	11	(3.9)	23	(2.0)
Others don't smoke	8	(0.9)	-	(0.0)	8	(0.7)
Passive smoking	-	(0.0)	4	(1.4)	4	(0.3)
Other	44	(5.0)	22	(7.7)	66	(5.6)
TOTAL	886	(100.0)	285	(100.0)	1171	(100.0)

Where N_1 = No giving each as 1st-stated reason
N_2 = No giving each as 2nd-stated reason
$N_{TOT} = N_1 + N_2$

Table 4.36 DISTRIBUTION OF TYPES OF 'HEALTH EFFECT' OFFERED AS REASONS FOR NEVER SMOKING A CIGARETTE

Effect on health	Primary 6 N	Primary 6 (%)	Primary 7 N	Primary 7 (%)
Bad for health	286	(47.0)	264	(47.4)
Can kill you	186	(30.5)	144	(25.8)
Cancer	94	(15.4)	103	(18.5)
Heart disease	5	(0.8)	11	(2.0)
Lung disease	26	(4.3)	30	(5.4)
Cough	12	(2.0)	5	(0.9)
TOTAL	609	(100.0)	557	(100.0)

Table 4.37 REASONS WHY A CHILD IN PRIMARY 6 WOULD ACCEPT A CIGARETTE THE FIRST TIME (S)HE WAS OFFERED

Reason	N_1	(%)	N_2	(%)	N_{TOT}	(%)
Curiosity	320	(38.2)	12	(15.4)	332	(36.3)
Image	127	(15.2)	27	(34.6)	154	(16.8)
Friends	81	(9.7)	6	(7.7)	87	(9.5)
For fun	68	(8.1)	5	(6.4)	73	(8.0)
Not to be left out	44	(5.3)	8	(10.3)	52	(5.7)
Stupidity/Ignorance	48	(5.7)	3	(3.8)	51	(5.6)
Everyone smokes	34	(4.1)	5	(6.4)	39	(4.3)
Forced to try	22	(2.6)	2	(2.6)	24	(2.6)
Parents	18	(2.2)	2	(2.6)	20	(2.2)
Siblings	-	(0.0)	-	(0.0)	-	(0.0)
Other	75	(9.0)	8	(10.3)	83	(9.1)
TOTAL	837	(100.0)	78	(100.0)	915	(100.0)

Where N_1 = No giving each as 1st-stated reason
N_2 = No giving each as 2nd-stated reason
$N_{TOT} = N_1 + N_2$

Table 4.38 REASONS WHY A CHILD IN PRIMARY 7 WOULD ACCEPT A CIGARETTE THE FIRST TIME (S)HE WAS OFFERED

Reason	N_1	(%)	N_2	(%)	N_{TOT}	(%)
Curiosity	302	(35.9)	11	(10.1)	313	(32.9)
Image	165	(19.6)	50	(45.9)	215	(22.6)
Friends	78	(9.3)	3	(2.8)	81	(8.5)
For fun	55	(6.5)	10	(9.2)	65	(6.8)
Not to be left out	68	(8.1)	10	(9.2)	78	(8.2)
Stupidity/Ignorance	18	(2.1)	4	(3.7)	22	(2.3)
Everyone smokes	58	(6.9)	5	(4.6)	63	(6.6)
Forced to try	12	(1.4)	3	(2.8)	15	(1.6)
Parents	12	(1.4)	2	(1.8)	14	(1.5)
Siblings	5	(0.6)	1	(0.9)	6	(0.6)
Other	69	(8.2)	10	(9.2)	79	(8.3)
TOTAL	842	(100.0)	109	(100.0)	951	(100.0)

Where N_1 = No giving each as 1st-stated reason
N_2 = No giving each as 2nd-stated reason
$N_{TOT} = N_1 + N_2$

Table 4.39 DISTRIBUTION OF TYPES OF 'IMAGE' OFFERED AS REASONS FOR ACCEPTING A CIGARETTE

	Primary 6		Primary 7	
Type of image	N	(%)	N	(%)
To look tough	19	(12.3)	37	(17.2)
To show off	12	(7.8)	16	(7.4)
To look grown-up	75	(48.7)	115	(53.5)
To look cool/trendy	6	(3.9)	17	(7.9)
To look smart/clever	26	(16.9)	13	(6.0)
To look good	5	(3.2)	10	(4.6)
To look daring	11	(7.1)	7	(3.3)
TOTAL	154	(100.0)	215	(100.0)

Table 4.40 REASONS WHY A CHILD IN PRIMARY 6 WOULD REFUSE A CIGARETTE THE FIRST TIME (S)HE WAS OFFERED

Reason	N_1	(%)	N_2	(%)	N_{TOT}	(%)
Health effects	368	(42.2)	55	(41.2)	423	(42.3)
It's dangerous	103	(11.8)	14	(10.7)	117	(11.7)
Care about health	84	(9.7)	14	(10.7)	98	(9.8)
Know the facts	71	(8.2)	5	(3.8)	76	(7.6)
Not allowed	65	(7.5)	8	(6.1)	73	(7.3)
Don't like it	44	(5.2)	10	(8.4)	54	(5.4)
Don't want to	31	(3.6)	7	(5.3)	38	(3.8)
Addiction	15	(1.7)	2	(1.5)	17	(1.7)
Smell	6	(0.7)	2	(1.5)	8	(0.8)
Other	83	(9.5)	14	(10.7)	97	(9.7)
TOTAL	870	(100.0)	131	(100.0)	1001	(100.0)

Where N_1 = No giving each as 1st-stated reason
N_2 = No giving each as 2nd-stated reason
$N_{TOT} = N_1 + N_2$

Table 4.41 REASONS WHY A CHILD IN PRIMARY 7 WOULD REFUSE A CIGARETTE THE FIRST TIME (S)HE WAS OFFERED

Reason	N_1	(%)	N_2	(%)	N_{TOT}	(%)
Health effects	355	(40.5)	49	(35.2)	404	(39.8)
It's dangerous	104	(11.9)	17	(12.2)	121	(11.9)
Care about health	64	(7.3)	16	(11.5)	80	(7.9)
Know the facts	115	(13.1)	11	(7.9)	126	(12.4)
Not allowed	41	(4.7)	7	(5.0)	48	(4.7)
Don't like it	53	(6.0)	9	(6.5)	62	(6.1)
Don't want to	33	(3.8)	7	(5.0)	40	(3.9)
Addiction	34	(3.9)	6	(4.3)	40	(3.9)
Smell	8	(0.9)	5	(3.6)	13	(1.3)
Other	70	(8.0)	12	(8.6)	82	(8.1)
TOTAL	877	(100.0)	139	(100.0)	1016	(100.0)

Where N_1 = No giving each as 1st-stated reason
N_2 = No giving each as 2nd-stated reason
$N_{TOT} = N_1 + N_2$

Table 4.42 DISTRIBUTION OF TYPES OF 'HEALTH EFFECT' OFFERED AS REASONS FOR REFUSING A CIGARETTE

Effect on health	Primary 6 N	Primary 6 (%)	Primary 7 N	Primary 7 (%)
Bad for health	276	(65.2)	278	(68.8)
Can kill you	68	(16.1)	54	(13.4)
Cancer	46	(10.9)	45	(11.1)
Heart disease	7	(1.6)	6	(1.5)
Lung disease	20	(4.7)	16	(4.0)
Cough	6	(1.4)	5	(1.2)
TOTAL	423	(100.0)	404	(100.0)

Table 4.43 REASONS FOR INTENDING PERSONALLY TO BECOME A REGULAR SMOKER

Reason	Primary 6 N	Primary 6 (%)	Primary 7 N	Primary 7 (%)
Friends	12	(30.0)	12	(20.3)
Parents	10	(25.0)	10	(16.9)
Forced/persuaded to smoke	1	(2.5)	3	(5.1)
Enjoyment	2	(5.0)	2	(3.4)
Other people	2	(5.0)	5	(8.5)
Image	1	(2.5)	1	(1.7)
To cope	1	(2.5)	5	(8.5)
Siblings	-	(0.0)	4	(6.8)
Other	11	(27.5)	17	(28.8)
TOTAL	40	(100.0)	59	(100.0)

Table 4.44 REASONS FOR INTENDING PERSONALLY NOT TO BECOME A REGULAR SMOKER

Reason	Primary 6 N	Primary 6 (%)	Primary 7 N	Primary 7 (%)
Health effects	811	(64.7)	741	(57.0)
Don't like it	105	(8.4)	178	(13.7)
Care about health	96	(7.7)	99	(7.6)
Smell	32	(2.6)	41	(3.2)
Parents	40	(3.2)	40	(3.1)
Know the facts	15	(1.2)	29	(2.2)
Cost	20	(1.6)	22	(1.7)
It's dangerous	25	(2.0)	17	(1.3)
Don't want to	8	(0.6)	5	(0.4)
Other	101	(8.1)	127	(9.8)
TOTAL	1253	(100.0)	1299	(100.0)

Table 4.45 DISTRIBUTION OF TYPES OF 'HEALTH EFFECT' OFFERED AS REASONS FOR NOT BECOMING A REGULAR SMOKER

Reason	Primary 6 N	Primary 6 (%)	Primary 7 N	Primary 7 (%)
Bad for health	452	(55.7)	350	(47.2)
Can kill you	158	(19.5)	145	(19.6)
Cancer	127	(15.7)	131	(17.7)
Heart disease	12	(1.5)	21	(2.8)
Lung disease	57	(7.0)	86	(11.6)
Cough	2	(0.2)	6	(0.8)
Problems with pregnancy	3	(0.4)	2	(0.3)
TOTAL	811	(100.0)	741	(100.0)

Table 4.46 CROSSTABULATION OF SMOKING BEHAVIOUR WITH SOCIAL CLASS BACKGROUND

		Ever-smoked N	(%)	
FATHER'S OCCUPATION	Nonmanual	39	(26.2)	$X^2 = 20.86$
	Manual	129	(35.2)	df = 3
	Unemployed	97	(48.5)	p <0.001
	Other	74	(42.5)	
MOTHER'S OCCUPATION	Nonmanual	61	(28.2)	$X^2 = 14.76$
	Manual	83	(37.2)	df = 3
	Unemployed	75	(44.9)	p = 0.002
	Other	120	(42.7)	

Table 4.47 CIGARETTE SMOKING BEHAVIOUR CROSSTABULATED WITH BELIEF THAT CIGARETTE ADVERTISEMENTS SHOULD BE BANNED

	Primary 6			Primary 7		
	Cigarette adverts should be banned					
Ever smoked?	Yes N (%)	No N (%)	TOTAL* N (%)	Yes N (%)	No N (%)	TOTAL** N (%)
Yes	183(85.1)	32(14.9)	215(100.0)	275(80.4)	67(19.6)	342(100.0)
No	629(91.2)	61 (8.8)	690(100.0)	485(88.0)	66(12.0)	551(100.0)
TOTAL	812(87.9)	93(10.3)	905(100.0)	760(85.1)	133(14.9)	893(100.0)

* Data missing for 15 cases

$X^2 = 6.49$ df = 1 p = 0.011

** Data missing for 12 cases

$X^2 = 9.65$ df = 1 p = 0.002

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Table 4.48 CROSSTABULATION OF CIGARETTE SMOKING BEHAVIOUR WITH THE PERCEPTIONS OF PREVALENCE OF SMOKING

		Primary 6					Primary 7				
		How many people of your age smoke cigarettes?									
Ever smoked?		Nearly All	Most	A Few	Hardly Any	TOTAL*	Nearly All	Most	A Few	Hardly Any	TOTAL**
Yes	N	15	68	69	65	217	35	111	141	56	343
	(%)	(6.9)	(31.3)	(31.8)	(30.0)	(100.0)	(10.2)	(32.4)	(41.1)	(16.3)	(100.0)
No	N	31	165	219	272	687	32	139	261	120	552
	(%)	(4.5)	(24.0)	(31.9)	(39.6)	(100.0)	(5.8)	(25.2)	(47.3)	(21.7)	(100.0)
TOTAL	N	46	233	288	337	904	67	250	402	176	895
	(%)	(5.1)	(25.8)	(31.9)	(37.3)	(100.0)	(7.5)	(27.9)	(44.9)	(19.7)	(100.0)

* Data missing for 16 cases

$X^2 = 9.40$ df = 3 p = 0.024

** Data missing for 10 cases

$X^2 = 14.34$ df = 3 p = 0.002

Table 4.49 CROSSTABULATION OF SMOKING BEHAVIOUR WITH ATTITUDES TO SMOKING

		Primary 6			Primary 7		
		Ever-smoked	Never-smoked		Ever-smoked	Never-smoked	
'Smoking is fun'	N	7	5	X^2=7.95 df=1	1	4	X^2=7.96 df=1
	(%)	(3.3)	(0.7)	p=0.005	(3.2)	(0.7)	p = 0.005
'Smoking makes you smelly'	N	158	557	X^2=7.34 df=1	287	464	X^2=0.028 df=1
	(%)	(73.1)	(81.7)	p=0.007	(84.4)	(84.8)	p=0.868
'Smoking calms your nerves'	N	54	129	X^2=4.16 df=1	95	105	X^2=9.38 df=1
	(%)	(25.2)	(18.8)	p=0.041	(17.2)	(30.8)	p=0.002
'Smoking makes you feel grown up'	N	80	207	X^2=3.75 df=1	121	132	X^2=14.12 df=1
	(%)	(37.4)	(30.3)	p=0.053	(35.6)	(23.9)	p <0.001
'Smoking gives you confidence'	N	21	44	X^2=2.69 df=1	29	22	X^2=7.93 df=1
	(%)	(9.8)	(6.4)	p=0.101	(8.5)	(4.0)	p=0.005

Table 4.50 CROSSTABULATION OF SMOKING BEHAVIOUR WITH AWARENESS OF BRANDS OF CIGARETTE

		Primary 6			Primary 7		
		Ever-smoked	Never-smoked		Ever-smoked	Never-smoked	
Able to name one brand	N	205	633	X^2=1.49 df=1	328	16	X^2=6.00 df=1
	(%)	(94.0)	(91.5)	p=0.222	(95.3)	(4.7)	p=0.014
Able to name two brands	N	167	499	X^2=1.71 df=1	291	390	X^2=22.96 df=1
	(%)	(76.6)	(72.1)	p=0.191	(84.6)	(70.5)	p <0.001

Table 4.51 CROSSTABULATION OF SMOKING BEHAVIOUR WITH ATTITUDES OF FRIENDS

	Primary 6			Primary 7		
	Ever smoked?			Ever smoked?		
How would your friends feel?	Yes N(%)	No N(%)	TOTAL* N(%)	Yes N(%)	No N(%)	TOTAL** N (%)
They'd think I was just like them	27(12.5)	43 (6.2)	70 (7.7)	39(11.4)	24 (4.3)	63 (7.0)
They'd think I was very stupid	137(63.4)	562(81.4)	699(77.2)	212(61.8)	456(82.6)	668(74.6)
They wouldn't bother	52(24.1)	85(12.3)	137(15.1)	92(26.8)	72(13.0)	164(18.3)
TOTAL	216(100.0)	690(100.0)	906(100.0)	343(100.0)	552(100.0)	895(100.0)

* Data missing for 14 cases

$X^2 = 30.32$ df = 2 p <0.001

** Data missing for 10 cases

$X^2 = 49.00$ df = 2 p <0.001

Table 4.52 CROSSTABULATION OF SMOKING BEHAVIOUR WITH PERCEIVED ATTITUDES OF OTHERS

		Primary 6			Primary 7		
		Ever-smoked	Never-smoked		Ever-smoked	Never-smoked	
Father would mind	N	174	567	X^2=1.30 df=1	252	449	X^2=5.76 df=1
	(%)	(80.9)	(84.2)	p=0.254	(77.5)	(84.1)	p=0.016
Mother would mind	N	177	596	X^2=2.86 df=1	268	477	X^2=9.85 df=1
	(%)	(81.6)	(86.2)	p=0.091	(78.4)	(86.4)	p=0.002
Neither parent would mind	N	30	90		65	72	
	(%)	(13.8)	(13.0)		(18.9)	(13.0)	
One parent would mind	N	23	39	X^2=6.70 df=2	38	36	X^2=13.09 df=2
	(%)	(10.6)	(5.6)	p=0.04	(11.0)	(6.5)	p=0.001
Both parents would mind	N	164	562		241	445	
	(%)	(75.6)	(81.3)		(70.1)	(80.5)	
Teacher would mind	N	133	444	X^2=0.51 df=1	166	320	X^2=7.41 df=1
	(%)	(61.6)	(64.3)	p=0.475	(48.5)	(57.9)	p=0.006

Table 4.53 CROSSTABULATION OF SMOKING BEHAVIOUR WITH FRIENDS' SMOKING BEHAVIOUR

How many of your friends smoke?	Primary 6 Ever smoked? Yes N	(%)	No N	(%)	TOTAL* N	(%)	Primary 7 Ever smoked? Yes N	(%)	No N	(%)	TOTAL** N	(%)
Most	10	(4.7)	7	(1.0)	17	(1.9)	20	(5.8)	5	(0.9)	25	(2.8)
Some	29	(13.5)	28	(4.1)	57	(6.3)	60	(17.5)	38	(6.9)	98	(10.9)
None	125	(58.1)	564	(82.1)	689	(76.4)	160	(46.6)	395	(71.6)	555	(62.0)
Don't know	51	(23.7)	88	(12.8)	139	(15.4)	103	(30.0)	114	(20.7)	217	(24.2)
TOTAL	215	(100.0)	687	(100.0)	902	(100.0)	343	(100.0)	552	(100.0)	895	(100.0)

* Data missing for 18 cases

$X^2 = 59.38$ df = 3 $p < 0.001$

** Data missing for 10 cases

$X^2 = 68.96$ df = 3 $p < 0.001$

Table 4.54 CROSSTABULATION OF CIGARETTE SMOKING BEHAVIOUR WITH SIBLINGS' SMOKING BEHAVIOUR

Primary 6

		Ever-smoked N (%)	Never-smoked N (%)	
Have an older brother who smokes	Yes	49 (22.9)	62 (9.2)	$X^2 = 28.05$
	No	165 (77.1)	614 (90.8)	df = 1
	TOTAL	214 (100.0)	676 (100.0)	p <0.001
Have an older sister who smokes	Yes	44 (20.4)	49 (7.3)	$X^2 = 30.09$
	No	172 (79.6)	626 (92.7)	df=1
	TOTAL	216 (100.0)	675 (100.0)	p <0.001
Have an younger brother who smokes	Yes	3 (1.4)	1 (0.1)	$X^2 = 5.75$
	No	209 (98.6)	672 (99.9)	df = 1
	TOTAL	212 (100.0)	673 (100.0)	p = 0.016
Have an younger sister who smokes	Yes	4 (1.9)	3 (0.4)	$X^2 = 4.20$
	No	210 (98.1)	670 (99.6)	df = 1
	TOTAL	214 (100.0)	673 (100.0)	p = 0.040

Primary 7

		Ever-smoked N (%)	Never-smoked N (%)	
Have an older brother who smokes	Yes	68 (20.3)	42 (7.9)	$X^2 = 28.32$
	No	267 (79.7)	488 (92.1)	df = 1
	TOTAL	335 (100.0)	530 (100.0)	p< 0.001
Have an older sister who smokes	Yes	58 (17.2)	43 (8.1)	$X^2 = 16.90$
	No	279 (82.8)	491 (91.9)	df = 1
	TOTAL	337 (100.0)	534 (100.0)	p< 0.001
Have an younger brother who smokes	Yes	6 (1.8)	4 (0.8)	$X^2 = 1.97$
	No	326 (98.2)	526 (99.2)	df = 1
	TOTAL	332 (100.0)	530 (100.0)	p = 0.160
Have an younger sister who smokes	Yes	3 (0.9)	4 (0.8)	$X^2 = 0.06$
	No	327 (99.1)	522 (99.2)	df = 1
	TOTAL	330 (100.0)	526 (100.0)	p = 0.814

Table 4.55 CROSSTABULATION OF CIGARETTE SMOKING BEHAVIOUR WITH PARENTS' SMOKING BEHAVIOUR

Primary 6

		Ever-smoked N (%)	Never-smoked N (%)	
Father smokes	Yes	126 (58.1)	329 (48.5)	$X^2 = 6.08$
	No	91 (41.9)	350 (51.5)	df = 1
	TOTAL	217 (100.0)	679 (100.0)	p = 0.014
Mother smokes	Yes	126 (58.6)	354 (51.5)	$X^2 = 3.36$
	No	89 (41.4)	334 (48.5)	df = 1
	TOTAL	215 (100.0)	688 (100.0)	p = 0.067
Number of parents who smoke	Neither	45 (20.6)	228 (33.0)	$X^2 = 12.2$
	One	94 (43.1)	243 (35.2)	df = 2
	Both	79 (36.2)	220 (31.8)	p = 0.002
	TOTAL	218 (100.0)	691 (100.0)	

Primary 7

		Ever-smoked N (%)	Never-smoked N (%)	
Father smokes	Yes	192 (59.3)	232 (43.7)	$X^2 = 19.51$
	No	132 (40.7)	299 (56.3)	df = 1
	Total	324 (100.0)	531 (100.0)	p <0.001
Mother smokes	Yes	209 (61.3)	237 (43.1)	$X^2 = 27.89$
	No	132 (38.7)	313 (56.9)	df = 1
	Total	341 (100.0)	550 (100.0)	p <0.001
Number of parents who smoke	Neither	80 (23.3)	223 (40.3)	$X^2 = 33.92$
	One	125 (36.4)	191 (34.5)	df = 2
	Both	138 (40.2)	139 (25.1)	p <0.001
	TOTAL	343 (100.0)	553 (100.0)	

Table 4.56 SELF-REPORTED CIGARETTE SMOKING BEHAVIOUR: CROSSTABULATION OF PRIMARY 6 AND PRIMARY 7 RESPONSES

		Primary 7 Ever Smoked?		
	Ever smoked?	Yes	No	TOTAL
Primary 6	Yes	454	136	590
	No	18	155	173
	TOTAL	472	291	763

Table 4.57 CHANGE IN SMOKING STATUS CROSSTABULATED WITH INTENTIONS TO SMOKE

	Do you think you will become a regular smoker?					
Tried smoking during year of study?	No		Yes		TOTAL	
	N	(%)	N	(%)	N	(%)
No	414	(91.6)	38	(8.4)	452	(100.0)
Yes	112	(83.0)	23	(17.0)	135	(100.0)
TOTAL	526	(89.6)	61	(10.4)	587	(100.0)

* Data missing for 3 cases

$X^2 = 8.31$ df = 1 p = 0.004

Table 4.58 CHANGE IN SMOKING STATUS CROSSTABULATED WITH ESTIMATED PEER PREVALENCE OF SMOKING

	How many people of your age do you think smoke cigarettes?									
Tried smoking during year of study?	Nearly all N	(%)	Most N	(%)	Some N	(%)	Hardly any N	(%)	TOTAL* N	(%)
No	12	(2.7)	98	(21.8)	161	(35.8)	179	(39.8)	450	(100.0)
Yes	8	(5.9)	42	(31.1)	40	(29.6)	45	(33.3)	135	(100.0)
TOTAL	20	(3.4)	140	(23.9)	201	(34.4)	224	(38.3)	585	(100.0)

Data missing for 5 cases

$X^2 = 9.28$ df = 3 p = 0.026

Table 4.59 CHANGE IN SMOKING STATUS CROSSTABULATED WITH AWARENESS OF TWO CIGARETTE BRANDS

	Able to name two brands?				
Tried smoking during year of study?	No N	(%)	Yes N	(%)	TOTAL N (%)
No	134	(29.5)	320	(70.5)	454 (100.0)
Yes	25	(18.4)	111	(81.6)	136 (100.0)
TOTAL	159	(26.9)	431	(73.1)	590 (100.0)

$X^2 = 6.59$ df = 1 p = 0.010

Table 4.60 CHANGE IN SMOKING STATUS CROSSTABULATED WITH OCCUPATION OF PARENTS

		Tried smoking during year of study?				
		No		Yes		
		N	(%)	N	(%)	
FATHER'S OCCUPATION	Nonmanual	89	(19.7)	13	(9.6)	$X^2 = 14.93$
	Manual	204	(45.2)	54	(39.7)	df = 3
	Unemployed	75	(16.6)	38	(27.9)	p = 0.002
	Other	83	(18.4)	31	(22.8)	
	TOTAL	451	(100.0)	136	(100.0)	
MOTHER'S OCCUPATION	Nonmanual	133	(29.6)	20	(14.8)	$X^2 = 13.48$
	Manual	120	(26.7)	36	(26.7)	df = 3
	Unemployed	73	(16.2)	28	(20.7)	p = 0.004
	Other	124	(27.6)	51	(37.8)	
	TOTAL	450	(100.0)	135	(100.0)	

Table 4.61 CHANGE IN SMOKING STATUS CROSSTABULATED WITH SMOKING BEHAVIOUR OF OTHERS

		Tried smoking during year of study?				
		No		Yes		
		N	(%)	N	(%)	
FATHER SMOKES	No/Don't know	255	(57.3)	50	(37.9)	X^2 = 15.32
	Yes	190	(42.7)	82	(62.1)	df = 1
						p< 0.001
	TOTAL	445	(100.0)	132	(100.0)	
MOTHER SMOKES	No/Don't know	250	(55.4)	45	(33.3)	X^2 = 20.30
	Yes	201	(44.6)	90	(66.7)	df = 1
						p< 0.001
	TOTAL	451	(100.0)	135	(100.0)	
HAVE AN OLDER BROTHER WHO SMOKES	No	418	(94.1)	111	(83.5)	X^2 = 15.32
	Yes	26	(5.9)	22	(16.5)	df = 1
						p < 0.001
	TOTAL	444	(100.0)	133	(100.0)	
NUMBER OF FRIENDS WHO SMOKE	Most	3	(0.7)	3	(2.2)	X^2 = 17.85
	Some	13	(2.9)	11	(8.1)	df = 3
	None	388	(86.2)	97	(71.3)	p < 0.001
	Don't know	46	(10.2)	25	(18.4)	
	TOTAL	450	(100.0)	136	(100.0)	

Table 4.62 CHANGE IN SMOKING STATUS CROSSTABULATED WITH ATTITUDES OF FRIENDS

Tried smoking during year of study?	How would your friends feel? They'd think I was like them N (%)	They'd think I was stupid N (%)	They wouldn't bother at all N (%)	TOTAL N(%)
No	23 (5.1)	386 (85.0)	45 (9.9)	454(100.0)
Yes	12 (9.0)	99 (73.9)	23 (17.2)	134(100.0)
TOTAL	35 (6.0)	485 (82.5)	68 (11.6)	588(100.0)

Data missing for 3 cases

$X^2 = 8.89$ df = 2 p = 0.012

Table 4.63 USE OF SPARE TIME BY CHILDREN IN PRIMARY 6

Activity	Frequency Daily N(%)	2-6 times/wk N(%)	Once a wk N(%)	Less than weekly N(%)	Never N(%)	TOTAL N(%)
Sports with friends	444(48.8)	249(27.4)	102(11.2)	65 (7.2)	49 (5.4)	909(100.0)
Play a musical instrument	102(11.3)	90(10.0)	100(11.1)	87 (9.6)	523(58.0)	902(100.0)
Read books or comics	424(46.6)	230(25.3)	135(14.8)	83 (9.1)	37 (4.1)	909(100.0)
Go to a disco, cinema etc	77 (8.5)	118(13.1)	229(25.3)	349(38.6)	131(14.5)	904(100.0)
Watch TV	745(82.0)	120(13.2)	21 (2.3)	14 (1.5)	8 (0.8)	908(100.0)
Go to an organi-sation	123(13.5)	189(20.8)	318(35.0)	34 (3.7)	244(26.9)	908(100.0)

Table 4.64 USE OF SPARE TIME BY CHILDREN IN PRIMARY 7

Activity	Frequency					
	Daily N(%)	2-6 times/wk N(%)	Once a wk N(%)	Less than weekly N(%)	Never N(%)	TOTAL N(%)
Sports with friends	422(47.1)	298(33.3)	74 (8.3)	66 (7.4)	36 (4.0)	896(100.0)
Play a musical instrument	95(10.6)	80 (9.0)	96(10.8)	111(12.4)	511(57.2)	893(100.0)
Read books or comics	375(41.8)	233(26.0)	150(16.7)	94(10.5)	45 (5.0)	897(100.0)
Go to a disco, cinema etc	69 (7.7)	123(13.8)	252(28.3)	344(38.6)	103(11.6)	891(100.0)
Watch TV	755(84.3)	105(11.7)	9 (1.0)	19 (2.1)	8 (0.9)	896(100.0)
Go to an organi-sation	88 (9.8)	170(19.0)	278(31.1)	42 (4.7)	316(35.4)	894(100.0)

Table 4.65 CROSSTABULATION OF CIGARETTE SMOKING BEHAVIOUR WITH FREQUENCY OF GOING TO A DISCO, CINEMA ETC

	Primary 6			Primary 7		
	Ever smoked?			Ever smoked?		
Frequency of going	No N(%)	Yes N(%)	TOTAL* N(%)	No N(%)	Yes N(%)	TOTAL** N(%)
Daily	56 (8.3)	21 (9.7)	77 (8.6)	35 (6.4)	33 (9.7)	68 (7.7)
2-6 times/ week	82(12.1)	34(15.7)	116(13.0)	62(11.4)	60(17.6)	122(13.8)
Once a week	166(24.5)	59(27.2)	225(25.2)	135(24.8)	117(34.4)	252(28.5)
Less than weekly	272(40.2)	74(34.1)	346(38.7)	238(43.8)	105(30.9)	343(38.8)
Never	101(14.9)	29(13.4)	130(14.5)	74(13.6)	25 (7.4)	99(11.2)
TOTAL	677(100.0)	217(100.0)	894(100.0)	544(100.0)	340(100.0)	884(100.0)

* Data missing for 26 cases

$X^2 = 4.28$ df = 4 p = 0.369

** Data missing for 21 cases

$X^2 = 31.82$ df = 4 p <0.001

Table 4.66 CROSSTABULATION OF CIGARETTE SMOKING BEHAVIOUR WITH CONSUMPTION OF ALCOHOL

	Primary 6			Primary 7		
	Ever tasted alcohol?			Ever tasted alcohol?		
Ever smoked?	No N(%)	Yes N(%)	TOTAL* N(%)	No N(%)	Yes N(%)	TOTAL** N(%)
No	145(21.1)	542(78.9)	687(100.0)	141(25.6)	409(74.4)	550(100.0)
Yes	19 (8.8)	196(91.2)	215(100.0)	39(11.5)	301(88.5)	340(100.0)
TOTAL	164(18.2)	738(81.8)	902(100.0)	180(20.2)	710(79.8)	890(100.0)

* Data missing for 18 cases

$X^2 = 16.57$ df = 1 p <0.001

** Data missing for 15 cases

$X^2 = 26.13$ df = 1 p <0.001

Table 4.67 CROSSTABULATION OF CIGARETTE SMOKING BEHAVIOUR WITH REGULAR EATING OF MEALS

		Primary 6 Ever-smoked N	(%)	Never-smoked N	(%)	
BREAKFAST	Usually	557	(81.1)	162	(74.7)	X^2 = 6.44
	Sometimes	114	(16.6)	52	(24.0)	df = 2
	Never	16	(2.3)	3	(1.4)	p = 0.040
	TOTAL	687	(100.0)	217	(100.0)	
LUNCH	Usually	602	(87.5)	184	(85.2)	X^2 = 0.84
	Sometimes	84	(12.2)	31	(14.4)	df = 2
	Never	2	(0.3)	1	(0.5)	p <0.656
	TOTAL	688	(100.0)	216	(100.0)	
EVENING MEAL	Usually	640	(93.2)	189	(87.5)	X^2 = 9.83
	Sometimes	40	(5.8)	26	(12.0)	df = 2
	Never	7	(1.0)	1	(0.5)	p = 0.007
	TOTAL	687	(100.0)	216	(100.0)	

		Primary 7 Ever-smoked N	(%)	Never-smoked N	(%)	
BREAKFAST	Usually	414	(75.1)	248	(72.3)	X^2 = 0.96
	Sometimes	121	(22.0)	85	(24.8)	df = 2
	Never	16	(2.9)	10	(2.9)	p = 0.619
	TOTAL	551	(100.0)	343	(100.0)	
LUNCH	Usually	486	(88.2)	283	(82.7)	X^2 = 5.27
	Sometimes	62	(11.3)	56	(16.4)	df = 2
	Never	3	(0.5)	3	(0.9)	p <0.072
	TOTAL	551	(100.0)	342	(100.0)	
EVENING MEAL	Usually	516	(93.5)	313	(92.1)	X^2 = 0.66
	Sometimes	33	(6.0)	25	(7.4)	df = 2
	Never	3	(0.5)	2	(0.6)	p = 0.717
	TOTAL	552	(100.0)	340	(100.0)	

Table 4.68 CROSSTABULATION OF CIGARETTE SMOKING BEHAVIOUR WITH PARTICIPATION IN SPORT AT SCHOOL

	Primary 6						Primary 7					
	Do you take part in sport at school?											
Ever smoked?	No N	(%)	Yes N	(%)	TOTAL* N	(%)	No N	(%)	Yes N	(%)	TOTAL** N	(%)
No	27	(3.9)	659	(96.1)	686	(100.0)	17	(3.1)	533	(96.9)	550	(100.0)
Yes	9	(4.2)	207	(95.8)	216	(100.0)	15	(4.4)	326	(95.6)	341	(100.0)
TOTAL	36	(4.0)	866	(96.0)	902	(100.0)	32	(3.6)	859	(96.4)	891	(100.0)

* Data missing for 18 cases

$X^2 = 0.02$ df = 1 p = 0.880

** Data missing for 14 cases

$X^2 = 1.04$ df = 1 p = 0.30

Table 4.69 CROSSTABULATION OF CIGARETTE SMOKING BEHAVIOUR WITH EXERCISE OUTSIDE SCHOOL

Number of hours exercise per week	Primary 6 Ever smoked? No N	(%)	Yes N	(%)	TOTAL* N	(%)	Primary 7 Ever smoked? No N	(%)	Yes N	(%)	TOTAL** N	(%)
None	11	(1.6)	2	(0.9)	13	(1.4)	17	(3.1)	7	(2.0)	24	(2.7)
About ½ hour	35	(5.1)	18	(8.5)	53	(5.9)	27	(4.9)	6	(1.8)	33	(3.7)
About 1 hour	66	(9.6)	14	(6.0)	80	(8.9)	50	(9,0)	24	(7.0)	74	(8.3)
About 2-3 hours	174	(25.4)	42	(19.7)	216	(24.0)	133	(24.1)	66	(19.3)	199	(22.2)
> 4 hours	400	(58.3)	137	(64.3)	537	(59.7)	326	(59.0)	239	(69.9)	565	(63.1)
TOTAL	686	(100.0)	213	(100.0)	899	(100.0)	553	(100.0)	342	(100.0)	895	(100.0)

* Data missing for 21 cases

$X^2 = 8.42$ df = 4 p = 0.077

** Data missing for 10 cases

$X^2 = 13.63$ df = 4 p = 0.00

Table 4.70 CROSSTABULATION OF CIGARETTE SMOKING BEHAVIOUR WITH ENJOYMENT OF EXERCISE IN SCHOOL

Ever smoked?	Primary 6 Do you enjoy exercise in school? No N	(%)	Yes N	(%)	TOTAL* N	(%)	Primary 7 Do you enjoy exercise in school? No N	(%)	Yes N	(%)	TOTAL** N	(%)
No	29	(4.2)	657	(95.8)	686	(100.0)	27	(4.9)	525	(95.1)	552	(100.0)
Yes	20	(9.3)	196	(90.7)	216	(100.0)	23	(6.7)	318	(93.3)	341	(100.0)
TOTAL	49	(5.4)	853	(94.6)	902	(100.0)	50	(5.6)	843	(94.4)	893	(100.0)

* Data missing for 18 cases

$X^2 = 8.42$ df = 1 p = 0.077

** Data missing for 12 cases

$X^2 = 1.37$ df = 1 p = 0.242

Table 4.71 PREVALENCE OF SMOKING: PRIMARY 6 AND PRIMARY 7

Primary 7 Ever smoked?	Primary 6 Ever smoked? No	Yes	TOTAL*
No	454	18	472
Yes	136	155	291
TOTAL	590	173	763

* Data missing for 11 cases

$X^2 = 88.89$ $p < 0.001$

Table 4.72 INTENTIONS TO BECOME A REGULAR SMOKER: PRIMARY 6 AND PRIMARY 7

Primary 7 Intend to become a smoker?	Primary 6 Intend to Become a Smoker? No	Yes	TOTAL*
No	576	65	641
Yes	79	43	122
TOTAL	655	108	763

* Data missing for 11 cases

$X^2 = 1.17$ $p = 0.279$

Table 4.73 KNOWLEDGE OF THE HEALTH EFFECTS OF SMOKING: PRIMARY 6 AND PRIMARY 7

a) SMOKING MAKES YOU MORE LIKELY TO GET OUT OF BREATH

Primary 7	Primary 6 True	Primary 6 False/ Don't know	TOTAL*
True	373	156	529
False/Don't know	102	132	234
TOTAL	475	288	763

* Data missing for 11 cases

$X^2 = 10.89$ $p = 0.001$

b) SMOKING CAN GIVE YOU LUNG CANCER

Primary 7	Primary 6 True	Primary 6 False/ Don't know	TOTAL*
True	730	23	753
False/Don't know	8	3	11
TOTAL	738	26	764

* Data missing for 10 cases

$X^2 = 6.32$ $p = 0.012$

Table 4.74 ATTITUDES TOWARDS SMOKING: PRIMARY 6 AND PRIMARY 7

a) PEOPLE SMOKE TO SHOW OFF

Primary 7	Primary 6 True	Primary 6 False/ Don't know	TOTAL*
True	477	160	637
False/Don't know	70	56	126
TOTAL	547	216	763

* Data missing for 11 cases

$X^2 = 34.44$ $p < 0.001$

b) SMOKING MAKES YOU SMELLY

Primary 7	Primary 6 True	Primary 6 False/ Don't know	TOTAL*
True	534	115	649
False/Don't know	70	38	108
TOTAL	604	153	757

* Data missing for 17 cases

$X^2 = 10.46$ $p = 0.007$

c) SMOKING MAKES YOU LOOK TOUGH

Primary 7	Primary 6 True	Primary 6 False/ Don't know	TOTAL*
True	81	92	173
False/Don't know	134	448	582
TOTAL	215	540	755

* Data missing for 19 cases

$X^2 = 7.44$ $p = 0.006$

d) SMOKING MAKES YOU FEEL GROWN-UP

Primary 7	Primary 6 Yes	Primary 6 No/ Don't know	TOTAL*
Yes	107	103	210
No/Don't know	138	410	548
TOTAL	245	513	758

* Data missing for 16 cases

$X^2 = 4.80$ $p = 0.028$

e) SMOKING KEEPS YOUR WEIGHT DOWN

Primary 7	Primary 6 Yes	No/ Don't know	TOTAL*
Yes	37	66	103
No/Don't know	100	557	657
TOTAL	137	623	760

* Data missing for 14 cases

$X^2 = 6.56$ $p = 0.010$

Table 4.75 PERCEPTIONS OF SELF: PRIMARY 6 AND PRIMARY 7

a) FASHIONABLE AND TRENDY

	Primary 6		
Primary 7	Yes	No	TOTAL*
Yes	422	143	565
No	61	124	185
TOTAL	483	267	750

* Data missing for 24 cases

$X^2 = 32.16$ $p < 0.001$

b) GROWN-UP

	Primary 6		
Primary 7	Yes	No	TOTAL*
Yes	389	136	525
No	100	128	228
TOTAL	489	264	753

* Data missing for 21 cases

$X^2 = 5.19$ $p = 0.023$

Table 4.76 PERCEPTIONS OF SMOKERS: PRIMARY 6 AND PRIMARY 7

a) SHY

	Primary 6		
Primary 7	Yes	No	TOTAL*
Yes	41	64	105
No	116	513	629
TOTAL	157	577	734

* Data missing for 40 cases

$X^2 = 14.45$ $p < 0.001$

b) CLEVER AT SCHOOL

	Primary 6		
Primary 7	Yes	No	TOTAL*
Yes	116	109	225
No	142	353	495
TOTAL	258	462	720

* Data missing for 54 cases

$X^2 = 4.08$ $p = 0.043$

Table 4.77 PERCEPTIONS OF NONSMOKERS IN PRIMARY 6 AND PRIMARY 7

a) FRIENDLY

	Primary 6		
Primary 7	Yes	No	TOTAL*
Yes	641	65	706
No	40	9	49
TOTAL	681	74	755

* Data missing for 19 cases

$X^2 = 5.48$ $p = 0.019$

b) FASHIONABLE AND TRENDY

	Primary 6		
Primary 7	Yes	No	TOTAL*
Yes	561	106	667
No	56	38	94
TOTAL	617	144	761

* Data missing for 13 cases

$X^2 = 14.82$ $p < 0.001$

c) CLEVER

Primary 7	Primary 6 Yes	No	TOTAL*
Yes	615	80	695
No	52	15	67
TOTAL	667	95	762

* Data missing for 12 cases

$X^2 = 5.52$ $p = 0.019$

d) GROWN-UP

Primary 7	Primary 6 Yes	No	TOTAL*
Yes	340	173	513
No	102	145	247
TOTAL	442	318	760

* Data missing for 14 cases

$X^2 = 17.82$ $p < 0.001$

Table 4.78 CHILDREN SUGGESTING 'IMAGE' AS A REASON FOR ACCEPTING A CIGARETTE FOR THE FIRST TIME: PRIMARY 6 AND PRIMARY 7

Primary 7	Primary 6 Yes	No	TOTAL
Yes	35	82	117
No	141	516	657
TOTAL	176	598	774

$X^2 = 15.08$ $p = 0.001$

Table 4.79 CHILDREN SUGGESTING 'IMAGE' AS A REASON FOR BEING A REGULAR SMOKER: PRIMARY 6 AND PRIMARY 7

	Primary 6		
Primary 7	Yes	No	TOTAL
Yes	217	213	430
No	77	267	344
TOTAL	294	480	774

$X^2 = 62.84$ $p < 0.001$

Table 4.80 CHILDREN SUGGESTING 'STUPIDITY' AS A REASON FOR ACCEPTING A CIGARETTE FOR THE FIRST TIME: PRIMARY 6 AND PRIMARY 7

	Primary 6		
Primary 7	Yes	No	TOTAL
Yes	2	44	46
No	17	711	728
TOTAL	19	755	774

$X^2 = 11.08$ $p = 0.009$

Table 4.81 CHILDREN SUGGESTING 'KNOWLEDGE OF THE DANGERS OF SMOKING' AS A REASON FOR REFUSING A CIGARETTE FOR THE FIRST TIME: PRIMARY 6 AND PRIMARY 7

	Primary 6		
Primary 7	Yes	No	TOTAL
Yes	21	47	68
No	88	618	706
TOTAL	109	665	774

$X^2 = 11.85$ $p = 0.006$

Table 4.82 CHILDREN SUGGESTING 'NOT LIKING IT' AS A REASON FOR NEVER SMOKING: PRIMARY 6 AND PRIMARY 7

	Primary 6		
Primary 7	Yes	No	TOTAL
Yes	21	49	70
No	95	609	704
TOTAL	116	658	774

$X^2 = 14.06$ $p = 0.002$

Table 4.83 CHILDREN STATING THAT THEY WOULD NEVER BECOME REGULAR SMOKERS BECAUSE THEY ARE 'SENSIBLE': PRIMARY 6 AND PRIMARY 7

	Primary 6		
Primary 7	Yes	No	TOTAL
Yes	9	36	45
No	67	662	729
TOTAL	76	698	774

$X^2 = 8.74$ $p = 0.040$

Table 4.84 PERCEPTION OF TEACHER'S ATTITUDE: PRIMARY 6 AND PRIMARY 7

	Primary 6		
	Would Your Teacher Mind?		
Primary 7 Would your teacher mind?	Yes	No/ Don't know	TOTAL*
Yes	306	111	417
No/Don't know	197	156	353
TOTAL	503	267	770

* Data missing for 4 cases

$X^2 = 23.46$ $p < 0.001$

Table 4.85 SMOKING BEHAVIOUR OF FRIENDS: PRIMARY 6 AND PRIMARY 7

Primary 7	Primary 6 Most/Some	None/ Don't know	TOTAL*
Most/Some	26	78	104
None/Don't know	33	629	662
TOTAL	59	707	766

* Data missing for 8 cases

$X^2 = 17.44$ $p < 0.001$

Table 4.86 PERCEIVED PEER PREVALENCE OF SMOKING: PRIMARY 6 AND PRIMARY 7

Primary 7	Primary 6 Nearly All/Most	A Few/Hardly Any	TOTAL*
Nearly all/most	115	150	265
A few/hardly any	109	392	501
TOTAL	224	542	766

* Data missing for 8 cases

$X^2 = 6.18$ $p = 0.013$

Table 4.87 TALKING ABOUT CIGARETTE SMOKING: PRIMARY 6 AND PRIMARY 7

a) TALKING WITH PARENTS

	Primary 6		
Primary 7	Yes	Never	TOTAL*
Yes	486	119	605
Never	74	88	162
TOTAL	560	207	767

* Data missing for 7 cases

$X^2 = 10.03$ $p = 0.002$

b) TALKING WITH SIBLINGS

	Primary 6		
Primary 7	Yes	Never	TOTAL*
Yes	148	157	305
Never	99	290	389
TOTAL	247	447	694

* Data missing for 80 cases

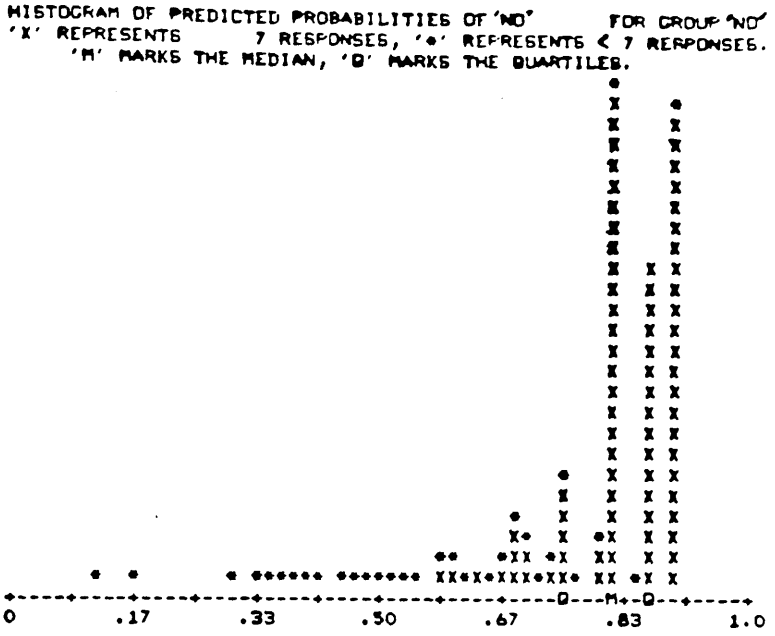
$X^2 = 12.69$ $p < 0.001$

c) TALKING WITH FRIENDS

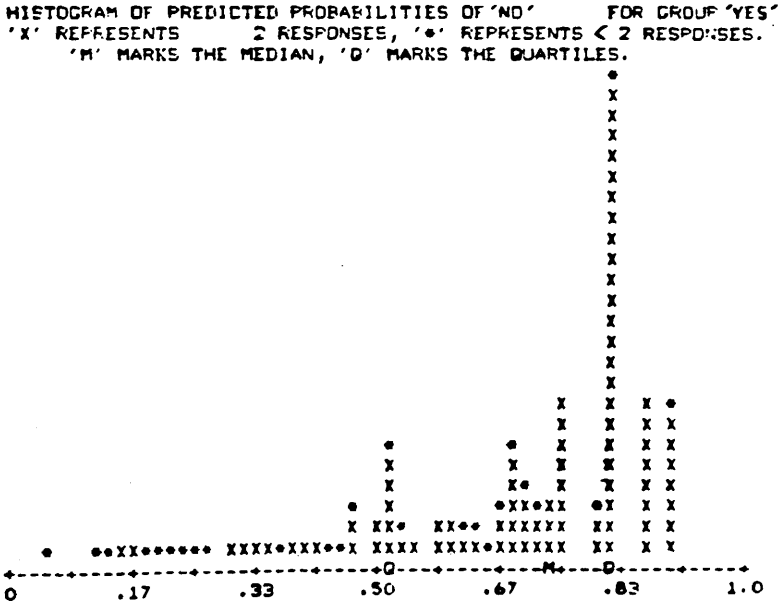
	Primary 6		
Primary 7	Yes	Never	TOTAL*
Yes	227	154	381
Never	110	274	384
TOTAL	337	428	765

* Data missing for 9 cases

$X^2 = 7.00$ $p = 0.008$

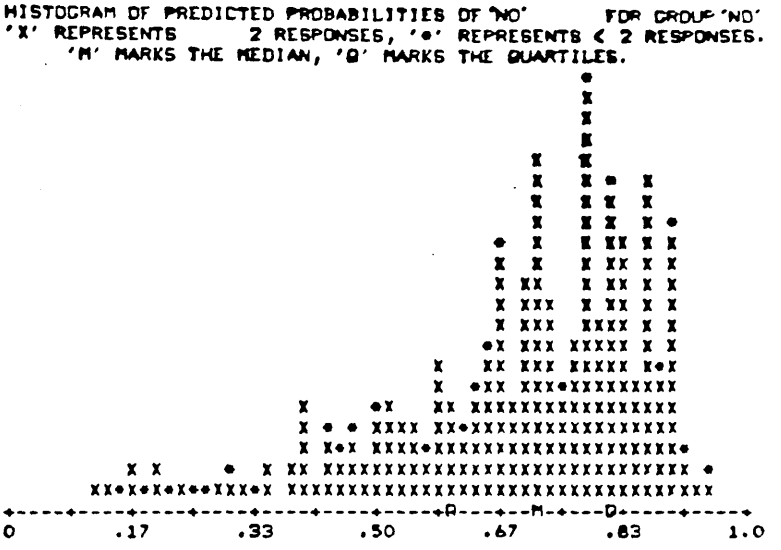


(i) Probability distribution for the group of never-smokers

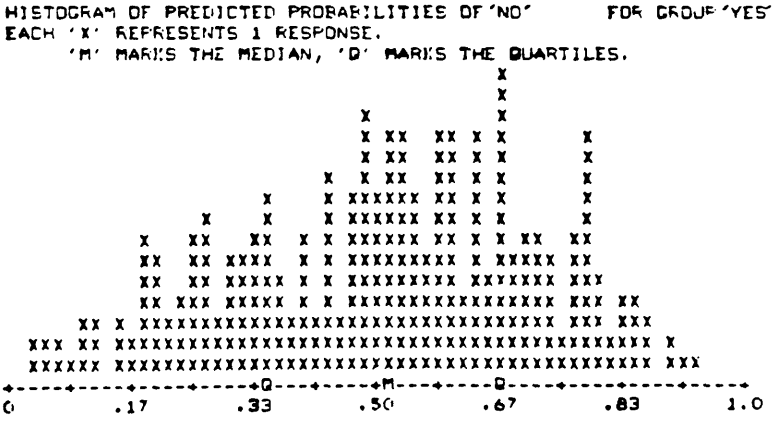


(ii) Probability distribution for the group of ever-smokers

Figure 4.5a: Probability distributions based on the logistic regression models for never-smoking in Primary 6

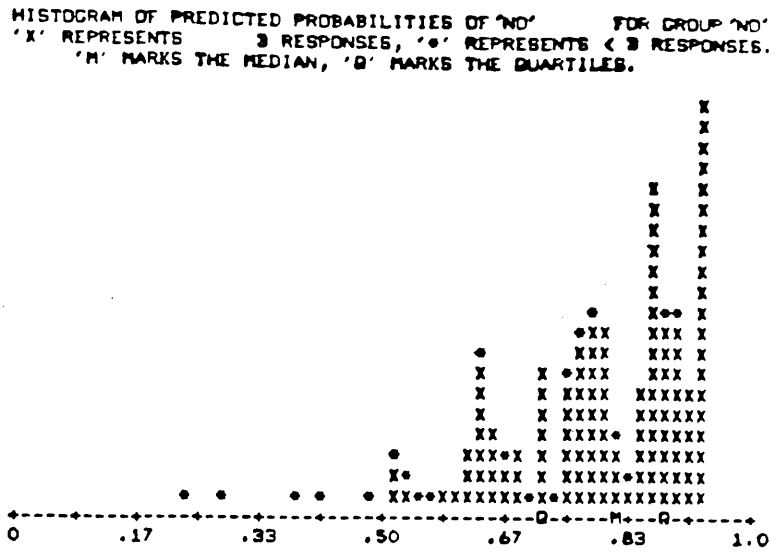


(i) Probability distribution for the group of never-smokers

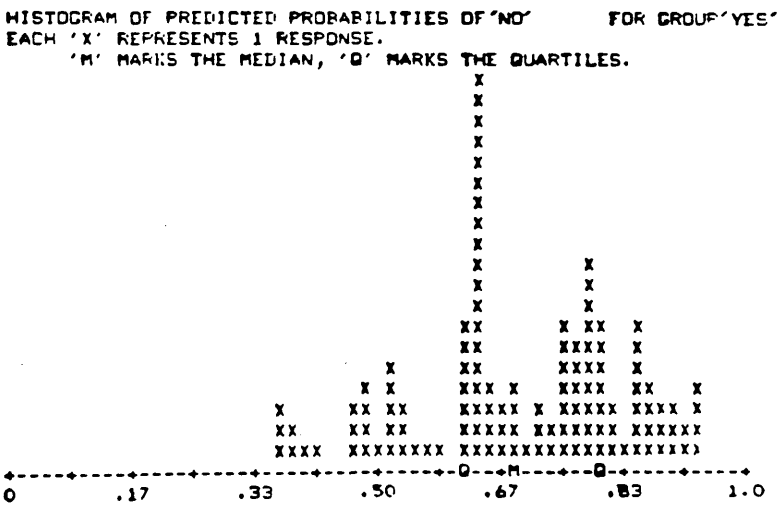


(ii) Probability distribution for the group of ever-smokers

Figure 4.5b Probability distributions based on the logistic regression model for never-smoking in Primary 7



(i) Probability distribution for the group of non-triers



(ii) Probability distribution for the group of triers

Figure 4.5c Probability distributions based on the logistic regression model for not trying smoking during the year of the study

Table 5.1 DISTRIBUTION OF RESPONSE, BY SCHOOL AND LEVEL OF DEPRIVATION

School code	Primary 6-stage teachers N_{TOT}	N_{RESP}	Total Responding in Each Quintile	Primary 7-stage teachers N_{TOT}	N_{RESP}	Total Responding in Each Quintile
101	2	1		2	1	
102	2	2		2	2	
104	2	2	Deprivation	2	2	Deprivation
105	2	2	Level 1:	2	2	Level 1:
106	1	1	10 teachers	1	1	11 teachers
107	1	1		1	1	
108	1	1		2	2	
201	1	1		1	1	
202	2	2	Deprivation	1	1	Deprivation
203	2	0	Level 2:	2	1	Level 2:
205	2	2	7 teachers	2	2	8 teachers
206	2	2		2	2	
207	2	0		1	1	
301	2	2		2	1	
302	2	1		2	2	
304	2	0	Deprivation	2	2	Deprivation
305	1	0	Level 3:	1	1	Level 3:
306	1	0	5 teachers	1	1	10 teachers
307	1	0		1	1	
308	2	2		2	2	
401	2	2		1	1	
402	1	1		1	1	
403	1	1	Deprivation	1	1	Deprivation
404	1	0	Level 4:	1	1	Level 4:
405	2	2	9 teachers	1	1	8 teachers
406	1	1		1	1	
407	1	1		1	1	
408	1	1		1	1	
501	1	1		1	0	
502	2	0		1	1	
503	2	2	Deprivation	2	2	Deprivation
504	2	2	Level 5:	2	2	Level 5:
505	1	1	9 teachers	1	1	8 teachers
506	2	2		2	1	
508	1	1		1	1	
TOTAL	54	40		50	45	

Where N_{TOT} = Total number of teachers of this stage in school
N_{RESP} = Number of teachers who returned a completed questionnaire

Table 5.2 AGE AND SMOKING STATUS OF RESPONDENTS

Smoking status	Primary 6 Age group (yrs) <35	35-50	>50	TOTAL*	Primary 7 Age group (yrs) <35	35-50	>50	TOTAL
Never-smoker	7	9	5	21	9	13	4	26
Ex-smoker	1	4	3	8	-	8	2	10
Occasional smoker	-	2	1	3	-	1	1	2
Regular smoker	2	3	2	7	3	3	1	7
TOTAL	10	18	11	39	12	25	8	45

* Data missing for 1 case

Table 5.3 CROSSTABULATION OF TEACHING OF HEALTH EDUCATION, WITH LEVEL OF DEPRIVATION

Deprivation level	Primary 6 Taught any health education this year? No	Yes	TOTAL	Primary 7 Taught any health education this year? No	Yes	TOTAL*
1 'Low'	1	9	10	-	11	11
2	-	7	7	-	8	8
3	-	5	5	-	9	9
4	-	9	9	1	7	8
5 'High'	-	9	9	-	8	8
TOTAL	1	39	40	1	43	44

* Data missing for 1 case

Table 5.4 CROSSTABULATION OF PLANS TO TEACH HEALTH EDUCATION, WITH LEVEL OF DEPRIVATION

	Primary 6			Primary 7		
	Planning to teach health education in rest of year?					
Deprivation level	No	Yes	TOTAL	No	Yes	TOTAL
1 'Low'	4	6	10	4	7	11
2	-	7	7	3	5	8
3	-	5	5	3	7	10
4	2	7	9	4	4	8
5 'High'	1	8	9	1	7	8
TOTAL	7	33	40	15	30	45

Table 5.5 CROSSTABULATION OF HEALTH EDUCATION TAUGHT, WITH HEALTH EDUCATION PLANNED

	Primary 6			Primary 7		
	Planning health education?					
Taught health education?	No	Yes	TOTAL	No	Yes	TOTAL*
No	-	1	1	-	1	1
Yes	7	32	39	15	28	43
TOTAL	7	33	40	15	29	44

* Data missing for 1 case

Table 5.6 METHODS USED FOR TEACHING HEALTH EDUCATION

Method	Primary 6 teachers N	(%)	Primary 7 teachers N	(%)
Incidental	27	(67.5)	30	(69.8)
Centre-of-interest	16	(40.0)	11	(25.6)
School's own scheme	5	(12.5)	9	(20.9)
Other	10	(25.0)	7	(16.3)

NB %s are the % of those who had taught some health education (N = 39 in Primary 6 and N = 43 in Primary 7) who stated they used each method. Teachers could use more than one method.

Table 5.7 CROSSTABULATION OF DIFFERENT METHODS USED, WITH LEVEL OF DEPRIVATION

Level of deprivation	Primary 6 teachers Number of methods used 1	2	3	TOTAL	Primary 7 teachers 1	2	3	TOTAL
1 'Low'	6	3	-	9	8	3	-	11
2	3	4	-	7	4	4	-	8
3	3	1	1	5	7	1	1	9
4	6	2	1	9	5	1	-	6
5 'High'	4	5	-	9	4	4	-	8
TOTAL	22	15	2	39	28	13	1	42

Table 5.8 METHODS TO BE USED FOR THE HEALTH EDUCATION PLANNED FOR THE REMAINDER OF THE SCHOOL YEAR

Method	Primary 6 teachers N	(%)	Primary 7 teachers N	(%)
Incidental	17	(51.5)	20	(66.7)
Centre-of-interest	12	(36.4)	6	(20.0)
School's own scheme	6	(18.2)	8	(26.7)
Other	5	(15.2)	3	(10.0)

NB %s are the % of those who intend to teach some health education during the remaining weeks of the school year (N = 33 in Primary 6 and N = 30 in Primary 7) who stated that they planned to use each method. Teachers could intend to use more than one method.

Table 5.9 CROSSTABULATION OF TOTAL NUMBER OF DIFFERENT METHODS THAT TEACHERS INTENDED TO USE FOR THE PLANNED HEALTH EDUCATION, WITH LEVEL OF DEPRIVATION

	Primary 6 teachers				Primary 7 teachers			
	Number of methods 'planned'							
Level of deprivation	1	2	3	TOTAL	1	2	3	TOTAL*
1 'Low'	5	1	-	6	7	-	-	7
2	7	-	-	7	2	2	-	4
3	2	3	-	5	5	1	1	7
4	7	-	-	7	4	-	-	4
5 'High'	5	3	-	8	5	2	-	7
TOTAL	26	7	-	33	23	5	1	29

* Data missing for 1 case

Table 5.10 MATERIALS USED FOR TEACHING HEALTH EDUCATION

Materials	Primary 6 teachers N	(%)	Primary 7 teachers N	(%)
Health leaflets	11	(28.2)	17	(39.5)
Books	15	(38.5)	18	(41.9)
TV	12	(30.8)	14	(32.6)
Visuals (posters/charts etc)	4	(10.3)	11	(25.6)
Health professionals	4	(10.3)	4	(9.3)
Topic-/project-based work	7	(18.0)	8	(18.6)
Other	16	(41.0)	25	(58.2)

NB %s are the % of those who had taught some health education (N = 39 in Primary 6 and N = 43 in Primary 7) who stated that they had used each material. Teachers could use more than one material.

Table 5.11 CROSSTABULATION OF TOTAL NUMBER OF DIFFERENT TYPES OF MATERIAL USED FOR HEALTH EDUCATION, WITH LEVEL OF DEPRIVATION

Level of deprivation	Primary 6 teachers: Number of materials used 1	2	3	4	TOTAL*	Primary 7 teachers: Number of materials used 1	2	3	4	TOTAL**
1 'Low'	4	-	3	1	8	2	4	-	4	10
2	1	2	1	2	6	-	1	4	2	7
3	2	-	1	-	3	5	1	1	1	8
4	2	5	-	1	8	2	3	-	1	6
5 'High'	5	2	2	-	9	1	3	-	4	8
TOTAL	14	9	7	4	34	10	12	5	12	39

* Data missing for 5 cases

** Data missing for 4 cases

Table 5.12 MATERIALS TO BE USED FOR THE HEALTH EDUCATION PLANNED FOR REMAINDER OF THE SCHOOL YEAR

Method	Primary 6 teachers N	(%)	Primary 7 teachers N	(%)
Health leaflets	8	(24.2)	7	(23.3)
Books	11	(33.3)	13	(43.3)
TV	10	(30.3)	8	(26.7)
Visuals (posters/charts etc)	2	(6.1)	4	(13.3)
Health professionals	-	(0.0)	1	(3.3)
Topic-/project-based work	6	(18.2)	9	(30.0)
Other	14	(42.4)	17	(56.7)

NB %s are the % of those who intended to teach some health education during the remaining weeks of the school year (N = 33 in Primary 6 and N = 30 in Primary 7) who stated that they planned to use each type of material. Teachers could intend to use more than one material.

Table 5.13 CROSSTABULATION OF TOTAL NUMBER OF DIFFERENT MATERIALS THAT THE TEACHERS INTENDED TO USE FOR THE PLANNED HEALTH EDUCATION, WITH LEVEL OF DEPRIVATION

	Primary 6 teachers					Primary 7 teachers				
	Number of materials 'planned'									
Level of deprivation	1	2	3	4	TOTAL*	1	2	3	4	TOTAL**
1 'Low'	5	-	1	-	6	1	1	1	3	6
2	1	1	2	-	4	1	-	2	0	3
3	1	1	2	-	4	2	1	-	2	5
4	2	2	2	1	7	2	1	-	1	4
5 'High'	4	1	1	-	6	0	5	-	1	6
TOTAL	13	5	8	1	27	6	8	3	7	24

* Data missing for 6 cases

** Data missing for 6 cases

Table 5.14 TOPICS COVERED IN HEALTH EDUCATION

Topic	Primary 6 teachers N	(%)	Primary 7 teachers N	(%)
Sex Education	5	(12.8)	6	(14.0)
Drugs	8	(20.5)	18	(41.9)
General Body Knowledge	24	(61.5)	28	(65.1)
Safety & First Aid	14	(35.9)	23	(53.5)
Alcohol	12	(30.8)	16	(37.2)
Smoking	25	(64.1)	33	(76.7)
Food & Nutrition	33	(84.6)	31	(72.1)
Exercise & Rest	24	(61.5)	30	(69.8)
Pollution	16	(41.0)	26	(60.5)
Relationships	12	(30.8)	21	(48.8)
Safety & the Out-of-Doors	18	(46.2)	25	(58.1)
Hygiene & Cleanliness	32	(82.0)	32	(74.4)
Growth & Development	9	(23.1)	14	(32.6)

NB %s are the % of those who had taught some health education (N = 39 in Primary 6 and N = 43 in Primary 7) who stated that they had covered each of the listed topics.

Table 5.15 TOPICS TO BE COVERED IN PLANNED HEALTH EDUCATION

Topic	Primary 6 teachers N	(%)	Primary 7 teachers N	(%)
Sex Education	3	(9.1)	6	(20.0)
Drugs	3	(9.1)	8	(26.7)
General Body Knowledge	13	(39.4)	7	(23.3)
Safety & First Aid	10	(30.3)	7	(23.3)
Alcohol	4	(12.1)	7	(23.3)
Smoking	8	(24.2)	9	(30.0)
Food & Nutrition	9	(27.3)	9	(30.0)
Exercise & Rest	10	(30.3)	9	(30.0)
Pollution	10	(30.3)	11	(36.7)
Relationships	8	(24.2)	9	(30.0)
Safety & the Out-of-Doors	10	(30.3)	15	(50.0)
Hygiene & Cleanliness	14	(42.4)	15	(50.0)
Growth & Development	9	(27.3)	9	(30.0)

NB %s are the % of those who intend to teach some health education during the remaining weeks of the school year (N = 33 in Primary 6 and N = 30 in Primary 7) who stated that they planned to cover each of the listed topics.

Table 5.16 HEALTH EDUCATION INPUT FROM SOMEONE OTHER THAN THE CLASS TEACHER

	Primary 6 teachers				Primary 7 teachers			
	'External' input to health education?							
Level of deprivation	Yes	(%)	No	(%)	Yes	(%)	No	(%)
1 'Low'	2	(20.0)	8	(80.0)	5	(45.5)	6	(54.5)
2	1	(14.3)	6	(85.7)	4	(50.0)	4	(50.0)
3	2	(40.0)	3	(60.0)	3	(30.0)	7	(70.0)
4	3	(33.3)	6	(66.7)	5	(62.5)	3	(37.5)
5 'High'	5	(55.6)	4	(44.4)	7	(87.5)	1	(12.5)
TOTAL	13	(32.5)	27	(67.5)	24	(53.3)	21	(46.7)

NB %s = % of respondents working in each deprivation level

Table 5.17 AMOUNT OF TIME ALREADY SPENT TEACHING HEALTH EDUCATION THIS YEAR

	Primary 6 teachers		Primary 7 teachers	
Time (hrs)	N	(%)	N*	(%)
< 5	17	(43.6)	19	(46.3)
5 - 10	15	(38.5)	14	(34.2)
11 - 15	6	(15.4)	5	(12.2)
> 15	1	(2.6)	3	(7.3)
TOTAL	39	(100.0)	41	(100.0)

*Data missing for 2 cases

Table 5.18 AMOUNT OF TIME TO BE SPENT ON HEALTH EDUCATION PLANNED FOR REMAINDER OF THE SCHOOL YEAR

	Primary 6 teachers		Primary 7 teachers	
Time (hrs)	N*	(%)	N**	(%)
< 5	16	(51.6)	18	(62.1)
5 - 10	12	(38.7)	6	(20.7)
11 - 15	2	(6.4)	2	(6.9)
> 15	1	(3.2)	3	(10.3)
TOTAL	31	(100.0)	29	(100.0)

*Data missing for 2 cases

**Data missing for 1 case

Table 5.19 AMOUNT OF TIME SPENT TEACHING HEALTH EDUCATION BY SOMEONE OTHER THAN THE CLASS TEACHER

	Primary 6 teachers		Primary 7 teachers	
Time (hrs)	N	(%)	N	(%)
< 5	9	(69.2)	20	(83.3)
5 - 10	3	(23.1)	3	(12.5)
11 - 15	-	(0.0)	1	(4.2)
> 15	1	(7.7)	-	(0.0)
TOTAL	13	(100.0)	24	(100.0)

Table 5.20 TOTAL NUMBER OF HOURS OF HEALTH EDUCATION TAUGHT DURING THE YEAR

	Primary 6 teachers		Primary 7 teachers	
TIME (hrs)	N*	(%)	N**	(%)
< 5	3	(8.3)	7	(17.5)
6 - 15	16	(44.4)	15	(37.5)
16 - 25	11	(30.5)	12	(30.0)
26 - 35	4	(11.1)	4	(10.0)
36 - 45	2	(5.6)	2	(5.0)
TOTAL	36	(100.0)	40	(100.0)

* Data missing for 4 cases

** Data missing for 5 cases

Table 5.21 TEACHERS' OPINIONS ABOUT THE STATEMENT: 'I FEEL THAT PREVENTION OF CHILDREN'S SMOKING SHOULD BE LEFT TO PARENTS'

	Primary 6 teachers		Primary 7 teachers	
Opinion	N*	(%)	N	(%)
Strongly agree	1	(2.6)	2	(4.4)
Agree	4	(10.3)	4	(8.9)
Neutral	5	(12.8)	11	(24.4)
Disagree	19	(48.7)	23	(51.1)
Strongly disagree	10	(25.6)	5	(11.1)
TOTAL	39	(100.0)	45	(100.0)

* Data missing for 1 case

Table 5.22 TEACHERS' OPINIONS ABOUT THE STATEMENT: 'I FEEL THAT SCHOOLS SHOULD TAKE THE RESPONSIBILITY FOR PREVENTING CHILDREN SMOKING

	Primary 6 teachers		Primary 7 teachers	
Opinion	**N**	**(%)**	**N**	**(%)**
Strongly agree	4	(10.0)	2	(4.4)
Agree	9	(22.5)	10	(22.2)
Neutral	6	(15.0)	11	(24.4)
Disagree	18	(45.0)	14	(31.1)
Strongly disagree	3	(7.5)	8	(17.8)
TOTAL	40	(100.0)	45	(100.0)

Table 5.23 TEACHERS' OPINIONS ABOUT THE STATEMENT: 'I FEEL THAT SCHOOLS AND PARENTS SHOULD COOPERATE IN THE PREVENTION OF SMOKING AMONG CHILDREN'

	Primary 6 teachers		Primary 7 teachers	
Opinion	**N***	**(%)**	**N**	**(%)**
Strongly agree	19	(48.7)	18	(40.0)
Agree	18	(46.2)	21	(46.7)
Neutral	2	(5.1)	5	(11.1)
Disagree	-	(0.0)	-	(0.0)
Strongly disagree	-	(0.0)	1	(2.2)
TOTAL	39	(100.0)	45	(100.0)

* Data missing for 1 case

Table 5.24 TEACHERS' OPINIONS ABOUT THE STATEMENT: 'I FEEL THAT ADULTS SHOULD SET AN EXAMPLE TO CHILDREN BY NOT SMOKING THEMSELVES'

	Primary 6 teachers		Primary 7 teachers	
Opinion	N	(%)	N	(%)
Strongly agree	19	(47.5)	20	(44.4)
Agree	18	(45.0)	20	(44.4)
Neutral	3	(7.5)	5	(11.1)
Disagree	-	(0.0)	-	(0.0)
Strongly disagree	-	(0.0)	-	(0.0)
TOTAL	40	(100.0)	45	(100.0)

Table 5.25 CROSSTABULATION OF TEACHERS' OWN SMOKING BEHAVIOUR WITH THEIR OPINION ABOUT WHETHER ADULTS SHOULD SET AN EXAMPLE

	Primary 6 teachers*						Primary 7 teachers					
	Smoking status						Smoking status					
Adults should set an example by not smoking?	Never		Ex		Current		Never		Ex		Current	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Agree	20	(95.2)	8	(100.0)	9	(90.0)	25	(96.2)	9	(90.0)	6	(66.7)
Neutral	1	(4.8)	-	(0.0)	1	(10.0)	1	(3.8)	1	(10.0)	3	(33.3)
TOTAL	21	(100.0)	8	(100.0)	10	(100.0)	26	(100.0)	10	(100.0)	9	(100.0)

* Data missing for 1 case

Table 5.26 TEACHERS' OPINIONS ABOUT THE STATEMENT 'I FEEL THAT THE GOVERNMENT SHOULD TAKE MORE ACTION TO PREVENT PEOPLE SMOKING'

	Primary 6 teachers		Primary 7 teachers	
OPINION	N*	(%)	N	(%)
Strongly agree	15	(38.5)	13	(28.9)
Agree	14	(35.9)	15	(33.3)
Neutral	4	(10.3)	11	(24.4)
Disagree	6	(15.4)	4	(8.9)
Strongly disagree	-	(0.0)	2	(4.4)
TOTAL	39	(100.0)	45	(100.0)

* Data missing for 1 case

Table 5.27 TEACHERS' PERCEPTIONS OF THE PRIORITY GIVEN TO HEALTH EDUCATION IN THEIR SCHOOL

	Primary 6 teachers		Primary 7 teachers	
LEVEL OF PRIORITY	N	(%)	N*	(%)
Not important	-	(0.0)	1	(2.3)
Not particularly important	6	(15.0)	3	(6.8)
Neither important nor unimportant	10	(25.0)	10	(22.7)
Quite important	20	(50.0)	26	(59.1)
Very important	4	(10.0)	4	(9.1)
TOTAL	40	(100.0)	44	(100.0)

* Data missing for 1 case

Table 5.28 TEACHER'S PERCEPTIONS OF THE PRIORITY WHICH SHOULD BE GIVEN TO HEALTH EDUCATION IN THEIR SCHOOL

	Primary 6 teachers		Primary 7 teachers	
LEVEL OF PRIORITY	N*	(%)	N*	(%)
Not important	-	(0.0)	-	(0.0)
Not particularly important	-	(0.0)	-	(0.0)
Neither important nor unimportant	4	(10.3)	-	(0.0)
Quite important	23	(59.0)	32	(72.7)
Very important	12	(30.8)	12	(27.3)
TOTAL	39	(100.0)	44	(100.0)

* Data missing for 1 case

Table 5.29 TEACHERS' PERCEPTIONS OF THE PRIORITY GIVEN TO ANTI-SMOKING EDUCATION IN THEIR SCHOOL

	Primary 6 teachers		Primary 7 teachers	
LEVEL OF PRIORITY	N*	(%)	N	(%)
Not important	2	(5.1)	8	(17.8)
Not particularly important	6	(15.4)	4	(8.9)
Neither important nor unimportant	16	(41.0)	16	(35.6)
Quite important	12	(30.8)	13	(28.9)
Very important	3	(7.7)	4	(8.9)
TOTAL	39	(100.0)	45	(100.0)

* Data missing for 1 case

Table 5.30 TEACHERS' PERCEPTIONS OF THE PRIORITY WHICH SHOULD BE GIVEN TO ANTI-SMOKING EDUCATION IN THEIR SCHOOL

	Primary 6 teachers		Primary 7 teachers	
LEVEL OF PRIORITY	N	(%)	N	(%)
Not important	-	(0.0)	1	(2.2)
Not particularly important	3	(7.5)	3	(6.7)
Neither important nor unimportant	7	(17.5)	8	(17.8)
Quite important	20	(50.0)	22	(48.9)
Very important	10	(25.0)	11	(24.4)
TOTAL	40	(100.0)	45	(100.0)

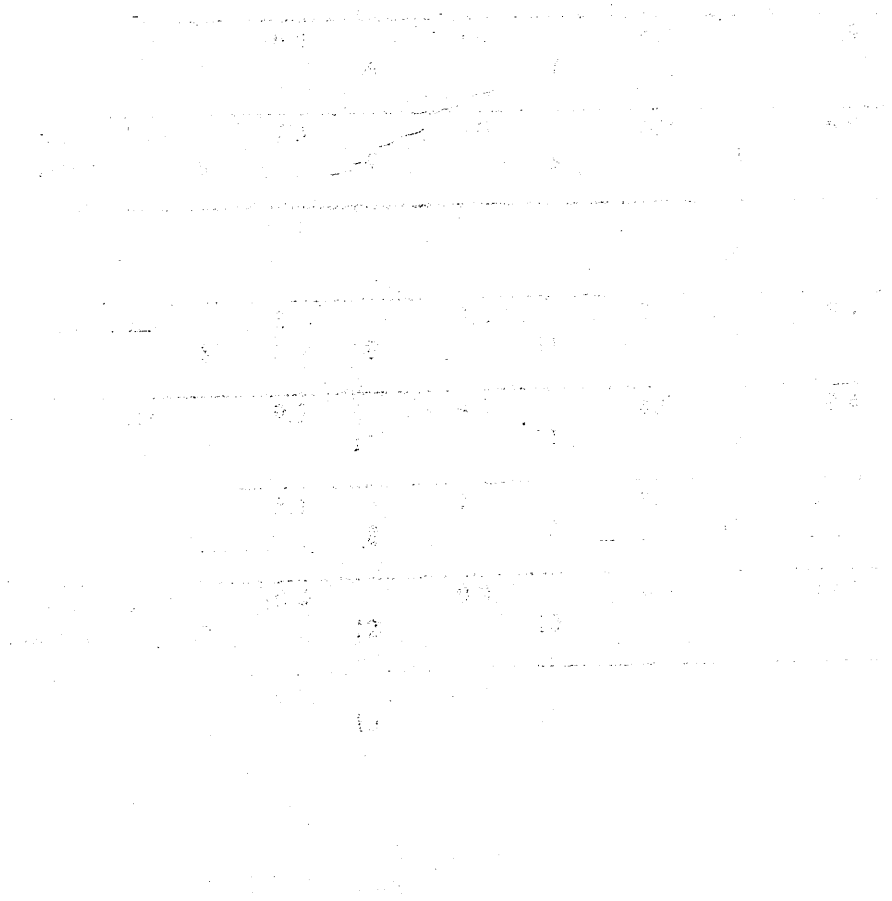


Table 5.31 PERCEIVED IMPORTANCE OF HEALTH-RELATED TOPICS - PRIMARY 6-STAGE TEACHERS

	Level of Deprivation											
	1		2		3		4		5		TOTAL	
TOPIC	Mean Rank	Order	Mean Rank	Order	Mean Rank	Order	Mean Rank	Order	Mean Rank	Order	Mean Rank	Order
Food & Nutrition	4.1	1	4.1	2	2.5	1	2.4	1	2.2	1	3.2	1
Hygiene & Cleanliness	5.8	4	2.4	1	4.0	2	2.5	2	2.4	2	3.5	2
General Body Knowledge	5.0	2	4.6	3	6.0	5	7.5	6	6.2	6	5.8	3
Exercise & Rest	7.9	10	5.6	4	5.2	4	6.5	4	4.0	3	6.0	4
Growth & Development	5.7	3	5.6	4	8.0	9	8.0	9	5.6	4	6.4	5
Smoking	6.3	5	6.4	6	7.0	7	6.2	3	6.9	7	6.5	6
Safety & the Out-of-Doors	7.6	9	7.3	7	5.0	3	6.9	5	6.0	5	6.8	7
Safety & First Aid	7.4	7	8.1	8	6.2	6	7.5	6	7.1	8	7.4	8
Relationships	7.5	8	8.1	8	9.5	11	7.8	8	9.1	9	8.2	9
Drugs	7.1	6	9.3	11	9.5	11	8.0	9	9.4	10	8.5	10
Alcohol	8.4	11	8.1	8	7.8	8	8.9	12	10.1	12	8.8	11
Pollution & the Environment	9.2	13	10.4	12	9.0	10	8.8	11	12.1	13	9.9	12
Sex Education	9.0	12	10.9	13	11.2	13	10.1	13	9.8	11	10.0	13

Table 5.32 PERCEIVED IMPORTANCE OF HEALTH-RELATED TOPICS - PRIMARY 7-STAGE TEACHERS

	Level of Deprivation											
	1		2		3		4		5		TOTAL	
TOPIC	Mean Rank	Order	Mean Rank	Order	Mean Rank	Order	Mean Rank	Order	Mean Rank	Order	Mean Rank	Order
Food & Nutrition	3.5	2	3.4	2	3.9	2	3.2	1	4.8	3	3.7	2
Hygiene & Cleanliness	4.2	3	2.1	1	2.5	1	3.9	2	4.2	2	3.4	1
General Body Knowledge	6.6	5	4.7	3	5.2	5	4.0	3	6.0	5	5.4	3
Exercise & Rest	6.8	6	6.0	5	5.1	4	7.5	7	6.9	7	6.4	5
Growth & Development	7.8	8	5.9	4	6.4	7	4.0	3	7.0	8	6.3	4
Smoking	7.5	7	7.4	7	8.2	8	6.4	6	3.6	1	6.7	6
Safety & the Out-of-Doors	3.4	1	8.9	10	5.7	6	9.1	10	9.5	11	6.9	8
Safety & First Aid	5.8	4	7.7	8	4.9	3	5.5	5	10.6	12	6.7	6
Relationships	8.1	9	6.1	6	8.7	9	10.5	13	6.8	6	8.0	9
Drugs	9.0	10	9.6	12	9.3	11	10.1	12	5.2	4	8.6	11
Alcohol	9.0	10	8.7	9	9.4	12	8.0	8	7.1	9	8.5	10
Pollution & the Environment	10.0	13	11.0	13	8.9	10	8.0	8	11.8	13	9.8	13
Sex Education	9.4	12	9.1	11	10.9	13	9.4	11	8.1	10	9.4	12

PILOT VERSION

APPENDIX 1.1

Please do not write in this column

1 2 3 4

School Code _____

HEAD TEACHER'S QUESTIONNAIRE*

Is the location of your school urban or rural?
Please tick appropriate box.

5

URBAN	
RURAL	

6 7 8

How many pupils are there on your school roll?

Please indicate which of the following health education materials are currently available in your school. Tick those that are available.

(a) Schools Council (Think Well) — 9

(b) Education for Healthy Living (Pink Booklet produced by S.R.C./Glasgow Division — 10

(c) Jimmy on the Road to Super Health — 11

(d) Good Health (Collins) — 12

(e) Local Division Guidelines — 13

(f) Health-related Library Reference Books — 14

(g) Other Materials (please specify) — 15

_____

_____

FINAL VERSION

Please do not not write in in this column

School Code_____ |__|__|__|__| 1 - 4

HEAD TEACHER'S QUESTIONNAIRE*

1. Is the location of your school urban or rural? Please tick appropriate box. |__| 5 - 6

Urban [ ] Rural [ ] |__| 7

2. How many pupils are there on your school roll? |__|__|__| 8 - 10

3. What is the religious denomination of your school? |__| 11

_____

4. Please indicate which of the following health education materials are currently available in your school. Please tick those that are available

(a) Schools Council (Published by Think Well)	|__|	|__| 12
(b) Education for Healthy Living (Pink Booklet produced by SRC/Glasgow Division	|__|	|__| 13
(c) Jimmy on the Road to Superhealth	|__|	|__| 14
(d) Good Health (Published by Collins)	|__|	|__| 15
(e) Local Division Guidelines	|__|	|__| 16
(f) Health-related Library Reference Books	|__|	|__| 17
(g) Other Materials (please specify)	|__|	|__| 18

_____

_____

_____

THANK YOU FOR YOUR COOPERATION

APPENDIX 1.2

Please do not write in this column

School Code _____

CLASS TEACHER'S QUESTIONNAIRE*

A survey is being conducted to determine what health education materials are in use in Primary Schools within Greater Glasgow. Please assist us in this survey by completing this questionnaire and returning it to your Head Teacher as soon as possible.

1. What stage did you teach during this academic year, 1985/86?

PRIMARY 6	
PRIMARY 7	
A COMPOSITE CLASS (Please specify which stages are involved)	

2. How many pupils were in your class this year?

BOYS ____ GIRLS ____

3. Did you teach health education during this academic year?

YES ____ NO ____

4. If no, please ignore questions 4-8, but answer questions 9 and 10.

4. If you taught health education, which method did you use?
(Please tick appropriate box)

(a) Incidental teaching ____

(b) Centre of interest/project ____

(c) Follow your own school's structured health education scheme ____

(d) Another method (please specify)

_____

_____

* PILOT VERSION

Please do not write in this column

5. How long did you spend teaching health education?
(Please specify)

Approx. _____ hours

12-14

6. Did you teach about any of the following health points?
(Please tick only those about which you taught)

(a) Diet ☐ 15

(b) Smoking ☐ 16

(c) Drugs ☐ 17

(d) Alcohol ☐ 18

(e) Glue sniffing ☐ 19

7. Which health education materials did you use during this academic year?

(a) Schools Council (Published by Think well) ☐ 20

(b) Billy Hughes ☐ 21

(c) Education for Healthy Living
(Pink booklet produced by SRC Glasgow Div.) ☐ 22

(d) Jimmy on the Road to Super Health ☐ 23

(e) Good Health (Collins) ☐ 24

(f) Health Education for Schools
(Produced by Callander Park College) ☐ 25

(g) Health Leaflets ☐ 26

(h) T.V. programmes (please specify which) ☐ 27

_____

_____

(i) Other materials (please specify) ☐ 28

_____

_____

Please do not write in this column

8. For how many years have you been using these health education materials?

MATERIAL	LENGTH OF TIME
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

29

9. Do you intend to alter the content of your health education programme next year?

YES ☐ NO ☐ 31

If yes, please indicate for each health point how the contribution to your health education programme will be altered. (For each health point, please tick the appropriate box)

	Increase	Stay the same	Decrease	
(a) Diet	☐	☐	☐	32
(b) Smoking	☐	☐	☐	33
(c) Drugs	☐	☐	☐	34
(d) Alcohol	☐	☐	☐	35
(e) Glue sniffing	☐	☐	☐	36

Other changes planned (please specify)

_____

_____

Please do not write in this column

10. The following is a list of health topics relevant to children of upper primary school age. Please rank them in order of importance. (Use a scale of 1-12, where rank 1 is the most important).

(a) Sex education	[ ]	[ ] 37-38
(b) Drugs	[ ]	[ ] 39-40
(c) General Body Knowledge	[ ]	[ ] 41-42
(d) Safety and First Aid	[ ]	[ ] 43-44
(e) Alcohol	[ ]	[ ] 45-46
(f) Smoking	[ ]	[ ] 47-48
(g) Food and Nutrition	[ ]	[ ] 49-50
(h) Exercise and Rest	[ ]	[ ] 51-52
(i) Pollution of Environment	[ ]	[ ] 53-54
(j) Relationships	[ ]	[ ] 55-56
(k) Safety and out-of-doors	[ ]	[ ] 57-58
(l) Hygiene and cleanliness	[ ]	[ ] 59-60

ool Code _____

Please do not write in this column

CLASS TEACHER'S QUESTIONNAIRE*

survey is being conducted to determine what health education erials are in use in Primary Schools within Greater Glasgow. ase assist us in this survey by completing this questionnaire and urning it to your Head Teacher as soon as possible.

1-4

What stage did you teach during this academic year, 1985/86?

PRIMARY 6	
PRIMARY 7	
A COMPOSITE CLASS (Please specify which stages are involved)	

5

For how many years have you been teaching this stage?

_____

6-7

How many pupils were in your class this year?

8-9

BOYS ____ GIRLS ____

The following is a list of health topics relevant to children of upper primary school age. Please rank them in order of importance. (Use a scale of 1-13, where rank 1 is the most important).

10-11

(a)	Sex education	12-13
(b)	Drugs (apart from tobacco and alcohol)	14-15
(c)	General Body Knowledge (How the body works)	16-17
(d)	Safety and First Aid	18-19
(e)	Alcohol	20-21
(f)	Smoking	22-23
(g)	Food and Nutrition	24-25
(h)	Exercise and Rest	26-27
(i)	Pollution of Environment	28-29
(j)	Relationships	30-31
(k)	Safety and Out-of-Doors	32-33
(l)	Hygiene and Cleanliness	34-35
(m)	Growth and Development	36-37

* FINAL VERSION

Please do not write in this column

Did you teach health education during this academic year, 1985/86?

YES ☐ NO ☐ | ☐ | 38

If you answered no, please ignore questions 6-9, but answer question 10.

If you taught health education, which method(s) did you use? (Please tick appropriate box)

(a) Incidental teaching ☐ | ☐ | 39

(b) Centre of interest/project ☐ | ☐ | 40

(c) Follow your own school's structured health education scheme ☐ | ☐ | 41

(d) Another method (please specify) | ☐ | 42

_____

_____

Which health education materials did you use during this academic year? For each material that you use, please indicate for how many years you have been using it. (Please tick appropriate boxes and indicate length of time).

	Use of materials (✓)	Length of time (years)	
(a) Schools Council (Published by Think Well)	☐	☐☐	☐☐☐ 43-45
(b) Billy Hughes	☐	☐☐	☐☐☐ 46-48
(c) Education for Healthy Living (Pink booklet produced by SRC Glasgow Div.)	☐	☐☐	☐☐☐ 49-51
(d) Jimmy on the Road to Super Health	☐	☐☐	☐☐☐ 52-54
(e) Good Health (Collins)	☐	☐☐	☐☐☐ 55-57
(f) Health Education for Schools (Produced by Callander Park College)	☐	☐☐	☐☐☐ 58-60
(g) Health Leaflets	☐	☐☐	☐☐☐ 61-63
(h) T.V. programmes (please specify which)	☐	☐☐	☐☐☐ 64-66
_____			
_____			
(i) Other materials (please specify)	☐	☐☐	☐☐☐ 67-69
_____			

Please do not write in this column

8. I would like to estimate how long you spent teaching health education this year. Please could you describe, in your own words, how long you spent so that I can make this assessment.

_____ | | | 70-72

9. Did you teach about any of the following health points?
(Please tick only those about which you taught)

(a)	Diet	73
(b)	Smoking	74
(c)	Drugs	75
(d)	Alcohol	76
(e)	Glue sniffing	77

10. What stage will you be teaching next academic year?

_____ | | 78

11. Do you intend to alter the content of your health education programme next year?

YES | | NO | | 79

If yes, please indicate for each health point how the contribution to your health education programme will be altered. (For each health point, please tick the appropriate box)

		Increase	Stay the same	Decrease	
(a)	Diet				80
(b)	Smoking				81
(c)	Drugs				82
(d)	Alcohol				83
(e)	Glue sniffing				84
	Other(s) please specify				85

_____

_____

Please state your reasons for altering your programme

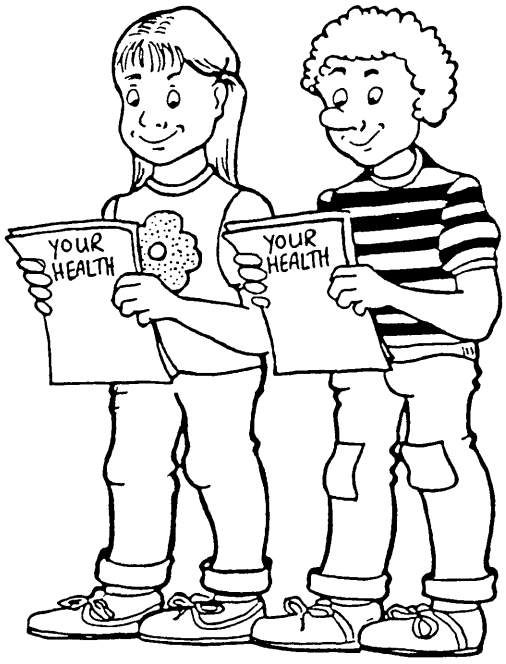
_____

Please make any other comments which you feel are relevant to health education in upper primary schools

_____

_____

APPENDIX 2.1



Here is a quiz about your health.

It is being completed by about 1500 children of your age in the Glasgow area. Your answers will help us to find out more about the lifestyle of young people. Please answer the questions as honestly as you can.

We need to know your name and birthday so that we can see how you've changed since last year.

Please put your full name here: _____

How old are you at the moment?: _____

When is your birthday?: _____

PTO

Please say whether you are a boy or a girl: _____

If your father or stepfather has a job, what does he do? (If he is unemployed write this in the space):

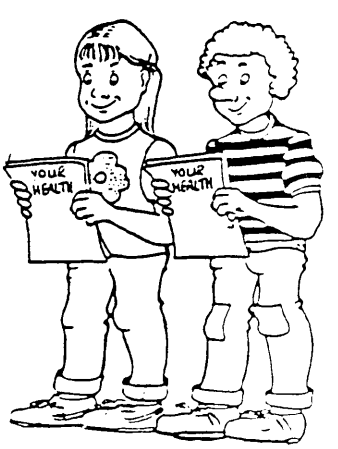
_____

If your mother or stepmother has a job, what does she do? (If she is unemployed write this in the space):

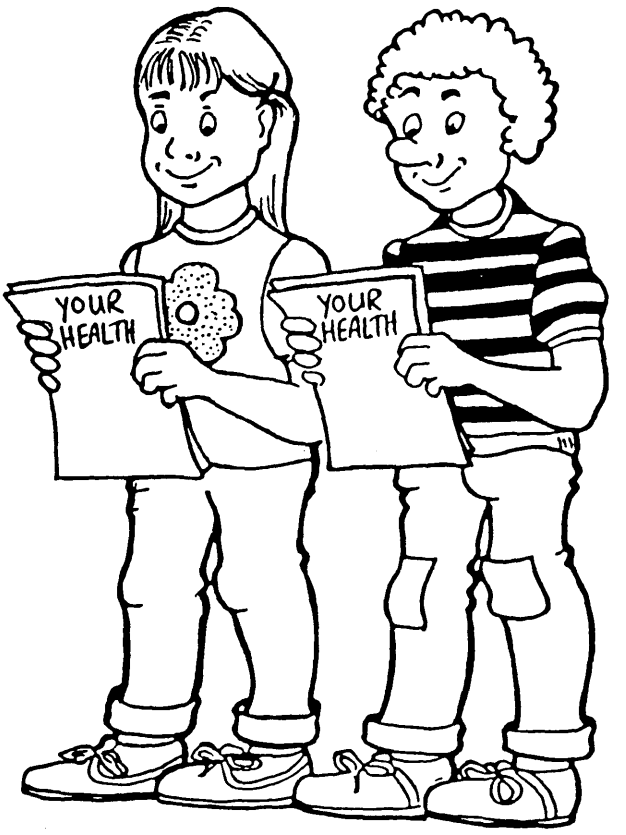
_____

Your answers will not be shown to anyone. They will be kept secret. Your name is only to let us see how you've changed since last year.

Thank you for your help.



A QUIZ ABOUT YOUR HEALTH



We would like to find out what children of your age in Glasgow think about health. Please help us by doing this quiz. Your answers will help us to plan interesting lessons about health which can be used in schools all over the country.

* * * * * * * * * * * * * * * * * * * *

This is not a test and will not be marked.

Your teachers and parents will not see your answers.

Please answer all the questions as honestly as you can.

We think you'll have fun answering this quiz.

Let's Go!

Please try to answer **all** the questions in this quiz, but if you find that you cannot answer a question **do not worry** just leave the answer blank and go on to the next question. Remember - your answers to these questions will be kept secret.

1 Some of these things are good for your health, others are bad for your health if you do them too often. For each one please indicate how you think it can affect your health.
Please put one tick (✔) for each one :-

	Very Good for health	Quite Good for health	No Effect on health	Quite Bad for health	Very Bad for health
(a) Reading books	☐	☐	☐	☐	☐
(b) Exercise	☐	☐	☐	☐	☐
(c) Smoking cigarettes	☐	☐	☐	☐	☐
(d) Eating a lot of sweets	☐	☐	☐	☐	☐
(e) Playing a musical instrument	☐	☐	☐	☐	☐
(f) Going to bed late and missing out on sleep	☐	☐	☐	☐	☐
(g) Forgetting to brush your teeth	☐	☐	☐	☐	☐

2. Do you think that you are healthy?
Please tick (✔) one box only.

a) Yes, I feel fine ☐

b) Yes but I often feel tired ☐

c) Yes but I often have pains ☐

d) I don't feel very healthy at the moment ☐

e) No I am not healthy ☐

PTO

3. Please write in your own words what it feels like to be healthy :

_____

_____

_____

	Yes frequently	Yes sometimes	Not at all
4. a) Do you talk about how you can stay healthy with your parents?	☐	☐	☐
b) Do you talk about how you can stay healthy with your brothers or sisters?	☐	☐	☐
c) Do you talk about how you can stay healthy with your friends?	☐	☐	☐

5. We would like to know what sort of person you think you are.

Please put <u>one</u> tick (✓) for each of these phrases to indicate how well it describes you :

	Yes very	Yes a bit	Not very	Not at all
a) I am clever at school	☐	☐	☐	☐
b) I am shy	☐	☐	☐	☐
c) I am good at sports	☐	☐	☐	☐
d) I am fashionable and trendy	☐	☐	☐	☐
e) I feel very grown-up	☐	☐	☐	☐
f) I am friendly	☐	☐	☐	☐

PTO

6 What do you usually do in your spare time?
(Please tick one box for each line):-

	Daily (almost)	2-6 times a week	Once a week	Less than weekly	Never
a)Sports with friends	☐	☐	☐	☐	☐
b)Play a musical instrument on my own	☐	☐	☐	☐	☐
c)Read books or comics	☐	☐	☐	☐	☐
d)Go to a disco,cinema, cafe or other entertainment	☐	☐	☐	☐	☐
e)Watch TV	☐	☐	☐	☐	☐
f)Go to an organization such as scouts or guides	☐	☐	☐	☐	☐

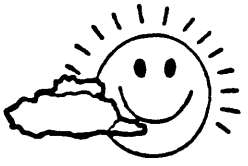
7. What do these signs stand for?
Please write what you think in the space beside each sign.

(a)

_____

_____

(b)



_____

_____

(c)

_____

_____

PTO

8. Can you name two makes or brands of cigarette?
Please write the names here:-

1) _____

_____

2) _____

_____

9. Some people say that cigarette adverts should be banned. Others say that they should be allowed. What do you think?
(Please tick (✓) one box only)

a) Cigarette adverts should be banned ☐

b) Cigarette adverts should be allowed ☐

10. Please tick (✓) one box for each person:

	Yes	Don't know	No
a) Does your father smoke cigarettes?	☐	☐	☐
b) Does your mother smoke cigarettes?	☐	☐	☐

11. Please tick (✓) one box for each person :

	Yes	No
a) Do you have any older sisters who smoke cigarettes?	☐	☐
b) Do you have any younger sisters who smoke cigarettes?	☐	☐
c) Do you have any older brothers who smoke cigarettes?	☐	☐
d) Do you have any younger brothers who smoke cigarettes?	☐	☐

PTO

12. Please read the following statements carefully and tick (✓) the box which best describes you:
(Tick <u>one box</u> only)

a) Most of my friends smoke ☐

b) Some of my friends smoke ☐

c) None of my friends smoke ☐

d) I do not know how many of my friends smoke ☐

	Yes frequently	Yes sometimes	Not at all
13. a) Do you talk about the dangers of smoking, with your parents?	☐	☐	☐
b) Do you talk about the dangers of smoking, with your brothers or sisters?	☐	☐	☐
c) Do you talk about the dangers of smoking, with your friends?	☐	☐	☐

14. Please read the following statements carefully and tick (✓) the box which best describes you:
(Tick <u>one box</u> only)

a) I have never smoked a cigarette ☐

b) I have only ever tried smoking once ☐

c) I used to smoke sometimes, but I don't now ☐

d) I smoke sometimes, but I don't smoke as much as one cigarette a week ☐

e) I usually smoke between one and six cigarettes a week ☐

f) I usually smoke more than six cigarettes a week ☐

PTO

15. a) Since this time yesterday, how many cigarettes have you smoked?

(Write the number in the box. If you haven't smoked any cigarettes write 0 in the box) ☐

b) Since this time last week, how many cigarettes have you smoked?

Write the number in the box. If you haven't smoked any cigarettes write 0 in the box) ☐

16. How old were you the first time you tried smoking a cigarette, even if it was only a puff or two?

(Please write in the box your age when you first tried smoking.

If you have never tried smoking, write 0 in the box.) ☐

17. A regular smoker is someone who smokes every day. If you ever become a regular smoker, do you think it will be :

Please tick (✔) one box only.

a) Before you are 16 years old? ☐

b) When you are 16-20 years old? ☐

c) When you are 20-30 years old? ☐

d) When you are over 30 years old? ☐

e) Not at all? ☐

PTO

18. a) If you think you <u>will</u> be a regular smoker, please say why :-

_____

_____

_____

OR

b) If you think you <u>will not</u> be a regular smoker, please say why :-

_____

_____

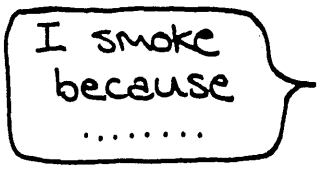
_____

19. We would like to know what sort of people of your age smoke cigarettes. Please put <u>one</u> tick (✓) for each of these phrases to indicate how well it describes someone who smokes:

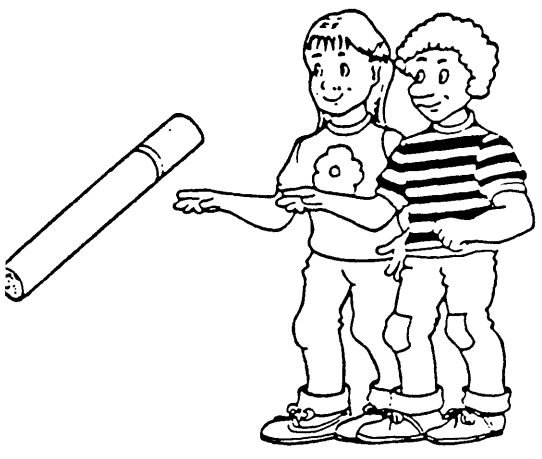
	Yes very	Yes a bit	Not very	Not at all
a) They are friendly	☐	☐	☐	☐
b) They are shy	☐	☐	☐	☐
c) They are good at sports	☐	☐	☐	☐
d) They feel grown-up	☐	☐	☐	☐
e) They are clever at school	☐	☐	☐	☐
f) They are fashionable and trendy	☐	☐	☐	☐

PTO

20. a) Here is a picture of a regular smoker of your age and sex. Please try to think of **the reason why this child smokes cigarettes** and write it in the space beside the picture.

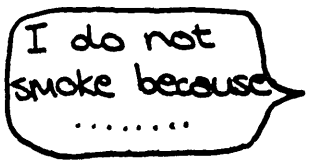


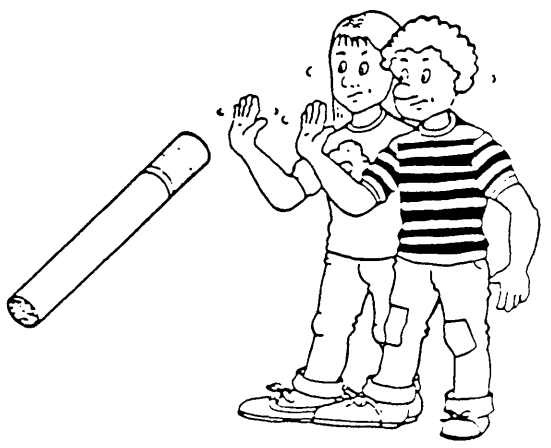
b) Here is a picture of a child of your age and sex who is being offered a cigarette for the first time. Please try to think of **the reasons for trying a cigarette and for saying "no"** and write them in the spaces by the picture.



and

c) Here is a picture of a child of your age and sex who has decided never to smoke cigarettes. Please try to think of **the reason why this child will never smoke** and write it in the space by the picture.





PTC

21. a) Would your father mind if he saw you smoking?

(Please tick(✔) one box only)

Yes	Don't know	No
☐	☐	☐

b) Would your mother mind if she saw you smoking?

(Please tick(✔) one box only)

Yes	Don't know	No
☐	☐	☐

22. Would your teachers mind if they saw you smoking?

(Please tick(✔) one box only)

Yes	Don't know	No
☐	☐	☐

23. How would your friends feel if they saw you smoking?
(Please tick (✔) <u>one box</u> only):-

They would think I was just like them ☐

They would think I was very stupid ☐

They would not bother at all ☐

24. How many people of your age do you think smoke cigarettes?
(Please tick (✔) <u>one box</u> only)

a) They nearly all smoke ☐

b) Most of them smoke ☐

c) A few of them smoke ☐

d) Hardly any smoke ☐

PTO

25. These are some things people have said about smoking. What do you think about each of them? Please put one tick (✓) for each one:-

	Yes	Don't know	No
a) Smoking is fun	☐	☐	☐
b) People of my age smoke to 'show off'	☐	☐	☐
c) Smoking calms your nerves	☐	☐	☐
d) Smoking makes you smelly	☐	☐	☐
e) Smoking makes you look tough	☐	☐	☐
f) Smoking is a waste of money	☐	☐	☐
g) Smoking makes you feel grown-up	☐	☐	☐
h) Smoking keeps your weight down	☐	☐	☐
i) Smoking gives you confidence	☐	☐	☐

26. Some of these sentences are true and some are not. What do you think about each of them? Please tick (✓) one box for each sentence

	True	Don't know	Not True
a) If you smoke you are more likely to get out of breath	☐	☐	☐
b) Smoking can give you dandruff	☐	☐	☐
c) If you smoke you are more likely to have a cough	☐	☐	☐
d) Smoking can give you bronchitis	☐	☐	☐
e) Smoking can give you heart disease	☐	☐	☐
f) Smoking can give you lung cancer	☐	☐	☐

PTO

27. We would like to know what sort of people of your age <u>do not</u> smoke cigarettes. Please put <u>one</u> tick (✓) for each of these phrases to indicate how well it describes a non-smoker:

	Yes very	Yes a bit	Not very	Not at all
a) They are good at sports	☐	☐	☐	☐
b) They are fashionable and trendy	☐	☐	☐	☐
c) They are clever at school	☐	☐	☐	☐
d) They have lots of friends	☐	☐	☐	☐
e) They are shy	☐	☐	☐	☐
f) They feel grown-up	☐	☐	☐	☐

28. Have you ever tasted alcohol?
(That means beer, wine, cider or spirits like whisky).

Yes ☐
No ☐

29. How often do you drink alcohol, even a few sips?
(Please tick (✓) <u>one box</u> only)

Once a week or more ☐
At least once a month but not weekly ☐
At least twice a year but not monthly ☐
Once a year or less ☐
I don't drink alcohol ☐

PTO

30. How often do you eat these meals?
(Please tick (✓) one box for each line)

	usually	sometimes	never
a) Breakfast	☐	☐	☐
b) Lunch	☐	☐	☐
c) Dinner	☐	☐	☐

31. These are questions about snacks. A snack is anything which you eat between meals. Things which are snacks are sweets, biscuits, crisps and fruit but there may be other things too. When do you usually eat snacks (tick (✓) one or more boxes).

a) In the morning (before lunch) ☐

b) Between lunch and evening meal ☐

c) After evening meal ☐

d) Never ☐

If you sometimes eat snacks, look down this list and tick all the snacks you eat.

a) Chocolate or sweets ☐

b) Biscuits or cakes ☐

c) Soft drinks (fizzy drinks) ☐

d) Crisps ☐

e) Fruit ☐

f) Bread or toast ☐

g) Anything else? What? _____

What is your favourite snack? _____

_____

PTO

32. Please read the list of meals below, then put a tick beside the THREE meals which you think contain all the necessary parts for a proper meal.
(You should tick ( ) 3 boxes)

a) Can of lemonade and two bars of chocolate ☐

b) Glass of milk, a piece of fruit and one bar of chocolate ☐

c) Chips and tomato ketchup ☐

d) Can of coke, ham salad, bread roll and butter ☐

e) Meat or fish curry, rice and salad ☐

f) Meat or fish, potato and cabbage ☐

g) Glass of milk, and a cheese-and-tomato sandwich ☐

h) Packet of crisps and a can of coke ☐

33. a) Do you take part in sport at school?

Yes ☐

No ☐

b) If yes, is it just:

In the gym or P.E. period ☐

In the gym or P.E. period + other school sport (e.g. football/netball club) ☐

34. Do you enjoy the exercise offered at school?

Yes ☐

No ☐

PTO

35. Outside of school, how many hours a week do you usually exercise or play games so that you get out of breath or sweat?
(Do not count school PE or games lessons).

None ☐

About ½ hour a week ☐

About 1 hour a week ☐

About 2-3 hours a week ☐

4 hours or more a week ☐

Do you have any comments about this quiz?
Please write them here:-

_____

_____

_____

THANK YOU FOR ANSWERING ALL THE QUESTIONS IN THIS QUIZ.

THE END!

APPENDIX 2.2 : CODING SCHEME FOR OPEN QUESTIONS

QUESTION 3 - Description of health

1 = "Happiness"

Emotional state

feel good, fine, bright, cheerful, great, nice, happy, OK

2 = "Energy"

Physical state

feel like doing things

feel fit, keep fit, full of energy, energetic

feel lively, full of life, ready to go, on the move, want to keep going, want to move

feel active / feel like running about / feel agile

3 = "Activity"

Can do things - eg can run about

can do a lot of things

can do things easily

able to....

can work hard

4 = "Power"

Can do anything - eg run a mile

doing things fast, strongly, hard, well

can do an awful lot more / more than when unhealthy

see 'self as something much bigger / more powerful / stronger etc than they are - eg I feel like Superman

Strong

Confident

5 = **"Freshness"**

Renewed, relaxed, refreshed, clean

as good as new

awake, alert

(*Bonus* idea. ++)

6 = **"Absence of disease / symptoms"**

Nothing wrong - no tablets

not sick, no headache, no pains, no cough, not ill / unwell

not miserable or depressed

Where not related to a specific thing / activity ie 'Don't get stiches when running' = 8(other)

(-- idea)

0 = **"Absence of mild symptoms - Below par"**

Not tired, not yawning, not lazy

not down / fed-up / no problems / not worried / not in a bad mood

not bored. not strange, not dirty, not weak

(-ve idea)

7 = **"Negative concept"**

If / When not healthy you .....

8 = **"Other"**

Including:

'It's good to be healthy' etc

'Doing x, y, and z keeps you healthy'

QUESTION 18 - Reasons for not being a regular smoker in the future

Allow for 2 reasons

Health effects

10 = Damages Health

20 = Bad for your Health / Bad for you / Affects health / gives you diseases

02 = " " & know someone with bad / damaged health

21 = Can kill you / you could die / premature death

26 = " " & know someone who has died

22 = Can give you Cancer

27 = " " & know someone with Cancer

23 = Can give you heart disease

28 = " " & know someone with IHD

24 = Can give you lung disease / bad for lungs / for chest

29 = " " & know someone with lung disease

25 = Pregnancy effects

52 = Can give you a cough

53 = " " & know someone with a cough

Don't like it

30 = I don't like smoke / makes me cough, choke / feel sick

31 = Don't like it / Don't like the habit / It's a bad, filthy, disgusting habit

60 = Tried & don't like it

61 = " " The taste

62 = " " Nausea

63 = " " Dizziness

64 = Tried and made me cough / choke

40 = The **Smell**

50 = The **Cost**

Know the facts

70 = Know the facts / the dangers / seen what can happen

71 = I'm clever, smart, not daft

72 = It's daft, so I won't

Care about health

80 = Not Good for you / for health

81 = Will prevent some ambition / good at sport

82 = I care about my health / want to be healthy / want to live for a long time

90 = Smoking is **dangerous** / It's bad

91 = **Don't want to** / It ruins your life / Don't want to waste my life

Parents

95 = Parental warning

96 = Parental example (NB - could go either way ie either parents smoke & suffer, or parents don't smoke)

00 = **Other**

QUESTION 20(a) - Reasons for smoking

Friends

10 = Friends smoke

11 = Friends smoke & copy them / want to try too / caught habit from them

12 = Friends smoke & told me to

13 = Friends smoke & forced me into it

14 = Friends smoke & asked if I wanted to try

Parents

20 = Parent(s) smoke

21 = Parent(s) smoke & copy them / want to try too

22 = Family smokes

Other people

25 = Adults, Grown-ups smoke

26 = Everybody, other people, everyone else does / seen s'one doing it

27 = Other children, bigger or older children do

Siblings

30 = Sib(s) smoke

31 = Sib(s) smoke & copy them / want to be like them

32 = Sib(s) smoke & told me to

33 = Sib(s) smoke & forced me into it

Image

40 = To look tough / be a bully

41 = To show off / attract attention

42 = To look grown-up / big

43 = To look cool / trendy / fashionable

44 = To look smart / clever / brilliant

45 = To look good

46 = To be daring / bravado / risk-taking / for fun

Enjoyment

50 = I like it /like to do it / enjoy it / makes me feel good / want to do it

51 = I've been told it's pleasurable / think it's pleasurable, good or nice

60 = I cannot stop / **addiction** / tried it and never stopped

Coping

70 = To cope

71 = Noone likes me / loneliness / rejection / unhappy

72 = Takes my mind off things

73 = I'm bored / nothing else to do / noone to play with

74 = It's my nerves / worry / to calm down

80 = **Don't want to be left out** / seem a coward / want to be like e'one else

61 = forced to smoke (not clear by whom)

Stupidity

90 = Stupidity

91 = Stupidity & ignorance of the dangers

92 = Ignorance alone / don't know the dangers

93 = Think it's good for me / for health / best for me

94 Don,t care about health / want to die

00 = Other

QUESTION 20(b) - Reasons for accepting

10 = **Curiosity** / To see what it's like / want to try / never tried it before

Friends

20 = Friends smoke

21 = Friends smoke & I copy them / want to be like them / to try too

22 = Friends smoke & told me to

23 = Friends smoke & forced me into it

24 = Friends smoke & asked if I wanted to try

Parents

30 = Parent(s) smoke

31 = Parent(s) smoke & I copy them

32 = Parent(s) let me smoke

35 = Family smoke

Siblings

40 = Sib(s) smoke

41 = Sib(s) smoke & I copy them

42 = Sib(s) smoke & told me to

43 = Sib(s) smoke & forced me into it

Image

50 = To look tough / hard / be a bully

51 = To show off / attract attention

52 = To look grown-up / big

53 = To look cool / trendy / fashionable

54 = To look smart / clever

55 = To be daring / bravado / risk-taking

56 = To look good

60 = Because I **don't want to seem a coward** / friends might slag you if you don't

61 = **Coping mechanism** : Loneliness / Rejection / Don't want to be left out / Want to be like e'one else

For fun

70 = For fun

71 = They like it / think it's good / thought it would be good / like to do it / enjoy it / thought they might enjoy it

Ignorance of the dangers

80 = Stupidity

81 = Stupidity & Ignorance of the dangers

82 = Ignorance of the dangers / don't know the facts

83 = Think it's good for me / for health

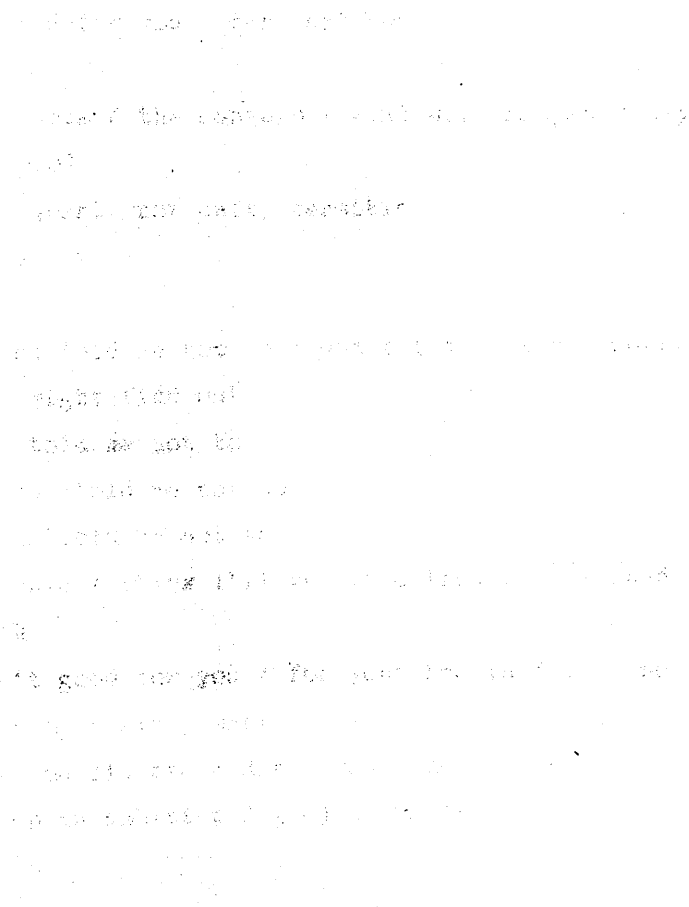
Other people

90 = Everyone smokes / other people smoke / seen s'one doing it

91 = Other children / bigger, older children do

95 = People persuade them / force them

00 = Other



QUESTION 20(c) - Reasons for refusing

Health effects

10 = Smoking is bad for your health / damages it / makes you ill

01 = " " , & know someone who's ill

11 = Smoking can kill you

16 = " " , & know someone who's died

12 = Smoking causes cancer / you could die of cancer

17 = " " , & know someone who's got / had cancer

13 = Smoking causes heart disease

18 = " " , & know someone who's got / had IHD

14 = Smoking causes lung disease

19 = " " , & know someone who's got / had lung disease

15 = Smoking can give you a cough / bad throat

95 = " " , & know someone who's got / had a cough / bad throat

20 = Smoking is **dangerous** / It's bad

21 = Smoking is bad for you / can hurt you

Know the facts

30 = I know the facts / the dangers / what will happen *(only where don't state what they are)*

31 = I'm clever, smart, not daft, sensible

32 = It's daft, silly

Told not to

40 = Parent(s) has told me not to / won't let me (ie parents say it's bad) / parent(s) might find out

41 = Teacher has told me not to

42 = Sibling(s) has told me not to

43 = Friend(s) has told me not to

44 = I'm not allowed / think I'll get into trouble / warned by adults

Care about health

50 = Smoking isn't good for you / for your health / it's not healthy

51 = I care about my health, want to be healthy, want to live longer / It would not make me fit etc / don't want bad health

52 = It would stop an ambition / good at sports

Don't like smoking

60 = I don't like smoking / doesn't feel good (implies have tried smoking)

61 = Don't like the smell (implies have tried)

62 = Don't like the taste

70 = I know I wouldn't like it

90 = Don't like smoke

91 = Don't like the smell (no indication they've tried it)

92 = Don't like it / Don't like the habit / It's a bad, filthy habit / It's disgusting, vile, horrible (where no indication they've tried it)

93 = It makes me feel sick

94 = It makes me dizzy

95 = It makes me cough / choke

Regret

80 = I will regret it

81 = I don't want to become **addicted** / become a regular smoker

82 = Fear - eg of Dying / don't want to die, to die young / scared

83 = I don't want to waste / ruin my life

84 = I don't want to

00 = **Other**

Question 20 (d) - Reasons for not smoking

Health effects

10 = Smoking is bad for your health / damages it / makes you ill

01 = " " , & know someone who's ill

11 = Smoking can kill you / you could die

15 = " " , & know someone / saw someone who's died

12 = Smoking causes cancer

16 = " " , & know someone who's got, had cancer

13 = Smoking causes heart disease

17 = " " , & know someone who's got, had IHD

14 = Smoking causes lung disease / black lungs

18 = " " , & know someone who's got, had lung disease

90 = Smoking gives you a cough / bad throat

91 = " " , & know someone who's got / had a cough / bad throat

20 = Smoking is dangerous / it's bad

21 = Smoking is bad for you / can hurt you

Know the facts

30 = I know the facts / the dangers / what will happen *(only where don't state what they are)*

31 = I'm clever, smart, not daft, sensible, brainy, good

32 = I've seen what can happen (know someone) (This is mostly in the cses of parents or siblings who are unhealthy.)

33 = It's daft, silly, stupid

Not allowed

40 = Parent(s) has told me not to / won't let me / might find out41 = Teacher has told me not to

42 = Sibling(s) has told me not to

43 = Friend(s) has told me not to

44 = I'm not allowed to smoke

45 = Parent(s) doesn't smoke

46 = Teacher doesn't smoke

47 = Sibling doesn't smoke

48 = Friends don't smoke

49 = Family does not smoke.

Care about health

50 = Smoking isn't good for you / for your health / isn't good

51 = I care about my health / want to live longer / not die early / want to be fit / have a better life, keep healthy (ie +ve choice & concept of control)

52 = It would stop an ambition / Good at sports

Don't want to

Don't like it

53 = I don't want to

60 = I don't like smoking, don't like it / don't like the habit / it's a bad habit / disgusting / horrible

61 = I don't like the smell

62 = I don't like the taste / must taste horrible

63 = It makes me feel sick / would make me sick

64 = It makes me dizzy

65 = It makes me cough / choke

66 = It's dangerous to others / Passive effects

70 = **Cost**

Regret

80 = I will regret it later

81 = I don't want to become **addicted** / become a regular **smoker**

82 = **Fear** - eg of Dying / don't want to die, to die young / scared

83 = I don't want to waste / ruin my life

00 = Other

APPENDIX 2.3 : READING SCHEDULE FOR THE QUESTIONNAIRE

PRIMARY SCHOOL QUESTIONNAIRE : READING SCHEDULE

Good morning boys and girls. My name's Miss Fyfe and I've come to school today to go through a quiz with you. This quiz is part of a study being carried out at Glasgow University. The quiz asks about your views on health. There are no right or wrong answers to the questions. What is important is that it is your views that you give - not those of your friends or whoever's sitting next to you. So just answer what you think and do not think too long before you answer each question.

Infront of you you should all have a quiz in two parts like this. (Hold up the quiz) Does anyone not have these two parts? - and has everyone got a pencil or pen to write with?

I am going to read through this quiz with you so that we all answer the questions together. Let's start with the single sheet.

(As cover sheet)
Here is a quiz about your health.

It is being completed by about 15 hundred children of your age in the Glasgow area. Your answers will help us to find out more about the lifestyle of young people. Please answer the questions as honestly as you can.

We need to know your name and birthday so that we can see how you've changed since last year.

Please put your name here. Now write your name on the first line.

How old are you at the moment? Put down your age in numbers on the next line.

When is your birthday? Write down the day, month and year when you were born. If you're worried about the year, miss that out.

Please say whether you are a boy or a girl

Now we want to know a bit about your mum and dad. Before answering the next questions, listen carefully to what I have to say because it will help you answer.

If your father or stepfather has a job, what does he do at his job? Please tell us what his job is, a bus driver or an electrician for example, not *where* he works. So, if your dad has a job, write down what it is. If your dad is unemployed, that means he doesn't have a job at the moment and is looking for work, write 'unemployed' on the line. If your dad doesn't work because he is disabled then write 'disabled'; and if you don't have a father, write 'don't have'.

If your mother or stepmother has a job, what does she do at her job? Please tell us what her job is, a nurse or a taxi driver for example, not *where* she works. If your mum is looking for a job and wants to work but doesn't have a job at the moment, put down 'unemployed'. If your mum stays at home, and isn't looking for a job, put down 'housewife'; and if you don't have a mother, write 'don't have'.
Your answers will not be shown to anyone. They will be kept secret. Your name is only to let us see how you've changed since last year. Thank you for your help.

Now, please put this (show cover sheet) sheet in the envelope but do not lick the envelope closed because the big quiz will go in there too after we've finished it. Now let's do the big quiz.

(As written)
We would like to find out what children of your age in Glasgow think about health. Please help us by doing this quiz. Your answers will help us to plan interesting lessons about health which can be used in schools all over the country.

This is not a test and will not be marked. Your teacher and parents will not see your answers. Please answer all the questions as honestly as you can - and remember there is no right or wrong answer. We think you'll have fun answering this quiz. Let's go!

Please try to answer <u>all</u> the questions in this quiz, but if you find that you cannot answer a question <u>do not worry</u> just leave the answer blank and go on to the next question. Remember - your answers to these questions will be kept secret.

Question 1 Some of these things are good for your health, others are bad for your health if you do them too often. For each one please indicate how you think it can affect your health. Please put one tick for each one:

a) Reading books is **Very good for health; Quite good for health; has No effect on health; is Quite bad for health; is Very bad for health** - Now tick one box for reading books.

b) Exercise is Very good for health: Quite good for health; has no effect on health; is Quite bad for health; is Very bad for health - Now tick one box for exercise.

c) Smoking cigarettes is .....(V.good to V bad as above)...- Now tick one box for smoking cigarettes.

d) Eating a lot of sweets .....- You decide and tick one box for eating a lot of sweets.

e) Playing a musical instrument .....- You decide and tick one box for playing a musical instrument.

f) Going to bed late and missing out on sleep .....- Now tick one box for going to bed late and missing out on sleep.

g) Forgetting to brush your teeth is ..... - Now tick one box for forgetting to brush your teeth.

Question 2 Do you think that you are healthy? Please tick one box only. Choose one of the answers here, either a) Yes I feel fine, or b) Yes but I often feel tired, or c) Yes but I often have pains, or d) I don't feel very healthy at the moment, or e) No I am not healthy.
Now tick the box which tells us how you feel

Question 3 Please write in your own words what it feels like to be healthy. Now write down how you feel when you're healthy. I'll give you a few minutes to think about that.

Question 4 This is in 3 parts. For each part please tick one box to show if you do it frequently, sometimes, or not at all.

a) Do you talk about how you can stay healthy, with your parents or with the adults you live with? Now tick one box.

b) Do you talk about how you can stay healthy, with your brothers or sisters or the other children you live with? If there are no other children in your household please leave the boxes empty.

c) Do you talk about how you can stay healthy, with your friends? Please tick one box.

Question 5 We would like to know what sort of person you think you are. Please put one tick for each of these phrases to indicate how well it describes you.

a) I am Clever at school - now would you tick **Yes very; Yes a bit; Not very; or Not at all** - Please tick one box - & be honest!

b) I am shy - Yes very; Yes a bit; Not very; Not at all - Please tick one box.

c) I am good at sports - Yes very..(etc) - Please tick one box.

d) I am fashionable and trendy - Yes very... - Please tick one box.

e) I feel very grown up - Yes very... - Please tick one box.

f) I am friendly - Yes very.... - Please tick one box.

Question 6 What do you usually do in your spare time? Please tick one box for each line to indicate if you do it Daily; 2 to 6 times a week - that is not every day but most days; Once a week; Less than weekly - that is less than once a week; or Never. In this question we are talking about out-of-school time.

a) Sports with friends, or other children. Now tick one box.

b) Play a musical instrument on my own. Tick one box.

c) Read books or comics. Tick one box.

d) Go to a disco, cinema, cafe or other entertainment.

e) Watch TV. Tick one box.

f) Go to an organization or club such as scouts or guides, or a sports club.

Question 7 There are 3 little pictures here. What do these signs stand for? Please write what you think in the space beside each sign. If you do not know what it stands for, write 'Don't Know'.

Question 8 Can you name two makes or brands of cigarette? Remember it is cigarette makes NOT cigars than we are interested in. Please write the names on the lines.

Question 9 Some people say that cigarette adverts should be banned. Others say they should be allowed. What do you think?
Please tick one box only. Either a) Cigarette adverts should be banned or b) Cigarette adverts should be allowed.

Question 10. Please tick one box for each person.

a) Does your father or stepfather smoke cigarettes? It's only cigarettes that count - not a pipe or cigars. Now tick one box

b) Does your mother or stepmother smoke cigarettes? Tick one box.

Question 11 Please tick one box for each person.

a) Do you have any <u>older sisters</u> who smoke cigarettes?

b) Do you have any <u>younger</u> sisters who smoke cigarettes?

c) Do you have any <u>older brothers</u> who smoke cigarettes?

d) Do you have any <u>younger</u> brothers who smoke cigarettes?

Question 12 Please read the following statements carefully and tick the box which best describes you. Please tick one box only. In this question you are choosing one box to tick.

a) Most of my friends smoke

b) Some of my friends smoke

c) None of my friends smoke

d) I do not know how many of my friends smoke

Now tick the box which best describes you.

Question 13 For each part please tick one box to show if you do it frequently, sometimes, or not at all.

a) Do you talk about the dangers of smoking, with your parents or the adults you live with? Please tick one box

b) Do you talk about the dangers of smoking, with your brothers or sisters or the other children you live with. If there are no other children in your household please leave the boxes empty.

c) Do you talk about the dangers of smoking, with your friends? Please tick one box.

Question 14 Please read the following statements carefully and tick the box which best describes you.

a) I have never smoked a cigarette or

b) I have only ever tried smoking once or

c) I used to smoke sometimes, but I don't now or

d) I smoke sometimes, but I don't smoke as much as one cigarette a week or

e) I usually smoke between 1 and 6 cigarettes a week or

f) I usually smoke more than 6 cigarettes a week

Now tick the box which best describes you.

Question 15 a) Since this time yesterday, how many cigarettes have you smoked? Write the number in the box. If you haven't smoked any cigarettes put a 'nothing' in the box.

b) Since this time last week, how many cigarettes have you smoked? Write the number in the box. If you haven't smoked any cigarettes put a 'nothing' in the box.

Question 16 How old were you the first time you tried smoking a cigarette, even if it was only a puff or two? Please write in the box your age when you first tried smoking. If you have never tried smoking, put a 'nothing' in the box.

Question 17 A regular smoker is someone who smokes every day. If you ever become a regular smoker, do you think it will be:

a) Before you are 16 years old?
b) When you are 16-20 years old?
c) When you are 20-30 years old?
d) When you are over 30 years old?
e) Not at all?

Please tick one box.

Question 18 In this question please answer **either** part a) **or** part b). For part a), If you think you WILL be a regular smoker please say why on the lines for part a) or For part b) If you think you WILL NOT be a regular smoker please say why on the lines for part b).
Please write down your reasons.

Question 19 We would like to know what sort of people of your age you think smoke cigarettes. Please put one tick for each of these phrases to indicate how well it describes someone of your age who smokes.

a) They are friendly - now would you say **Yes very; or Yes a Bit; or Not very; or Not at all** - Now tick one box to show what sort of people your age smoke cigarettes.
b) They are shy - You decide and tick one box.
c) They are good at sports - Yes very ...etc - Now tick one box.
d) They feel grown-up - Yes Very....etc - Now tick one box.
e) They are clever at school - Yes Very.....etc - Now tick one box.
f) They are fashionable and trendy - Yes Very...etc - Now tick one box.

Question 20 In this question please answer ALL the parts.

a) Here is a picture of a regular smoker of your age and sex. Please try to think of *the reason why this boy or girl smokes cigarettes* and write it in the space beside the picture. Please write down the reason.

b) Here is a picture of a child of your age and sex who is being offered a cigarette for the first time. Please try to think of *the reasons the boy or girl might give for trying a cigarette and for saying no*, and write them in the spaces by the picture.

First of all, the reason for saying 'Yes'. Please write down the reason.

Now the reason for saying 'No'. Please write down the reason.

c) Here is a picture of a child of your age and sex who has decided never to smoke cigarettes. Please try to think of *the reason why this boy or girl will never smoke* and write it in the space by the picture. Please write down the reason.

Question 21 a) Would your father or step-father mind if he saw you smoking? Please tick one box.

b) Would your mother or step-mother mind if she saw you smoking? Please tick one box.

Question 28 Have you ever tasted alcohol? That means beer, wine, cider, or spirits like whisky. Please tick one box.

Question 29 How often do you drink alcohol, even a few sips? Please tick one box only. Either Once a week or more; or At least once a month but not weekly - that is, more than once a month but not every week; or At least twice a year but not monthly - that is, not every month but at least two times a year; or Once a year or less; or I don't drink alcohol - & you can tick this box even if you have tasted alcohol once. Now please tick one box.

Question 30 How often do you eat these meals? Please tick one box for each line to indicate if you eat the meal usually, sometimes or never.

a) Breakfast. Now tick one box.
b) Lunch. Now tick one box.
c) Dinner or evening meal. Now tick one box.

Question 31 These are questions about snacks. A snack is anything which you eat between meals. Things which are snacks are sweets, biscuits, crisps and fruit but there may be other things too. When do you usually eat snacks? Tick one or more boxes.

a) In the morning - berore lunch. Tick the box if you eat snacks before lunch.
b) Between lunch and evening meal. Tick the box if you eat snacks in the afternoon.
c) After evening meal. Tick the box if you eat snacks in the evening.
d) Never. Tick the box if you never eat snacks.

If you sometimes eat snacks, look down the list and tick <u>all</u> the snacks you eat. Tick one or more boxes.

a) Chocolate or sweets
b) Biscuits or cakes
c) Soft drinks; Fizzy drinks
d) Crisps
e) Fruit
f) Bread or toast
g) Anything else? What? If you eat anything else as a snack, write down the name of this other snack.

What is the name of your <u>favourite</u> snack? Write down the name of your favourite snack.

Question 32 Please read the list of meals below, then put a tick beside the <u>three</u> meals which you think contain <u>all the necessary parts for a proper meal</u>. You should tick three boxes.

a) Can of lemonade and two bars of chocolate.
b) Glass of milk, a piece of fruit and one bar of chocolate.
c) Chips and tomato ketchup.
d) Can of coke, ham salad, bread roll and butter.
e) Meat or fish curry, rice and salad.
f) Meat or fish, potato and cabbage.
g) Glass of milk, and a cheese-and-tomato sandwich.
h) Packet of crisps and a can of coke.

You should have ticked 3 boxes to show which meals you think contain all the necessary parts for a proper meal.

Question 33 Do you take part in sport at school? Please tick one box - Yes or No.
If yes is it just in the gym or P.E. period; or In the gym or P.E. period plus other school sport, for example football or netball club at school. Please tick one box. Remember this is sport at school we're talking about.

Question 34 Do you enjoy the exercise offered at school? Tick one box - Yes or No.

Question 35 Outside of school, that is after school and at weekends, how many hours a week do you usually exercise or play games so that you get out of breath or sweat? Do not count school PE or games lessons. In this question we are talking about after school and at weekends.
None; or About half-an-hour a week; or About 1 hour a week; or About 2-3 hours a week; or 4 hours or more a week.
Please tick one box.

Do you have any comments about this quiz? Please write them down on the lines.

Thank you for answering all the questions in this quiz. If anyone wants to go back to a question please do that now.

Good! Thank you all for doing this quiz. I hope you enjoyed it.
Now please put the big quiz (show quiz) in the envelope beside the single sheet of paper and lick the envelope closed so that your answers remain secret. Please leave the envelope on your desk and I shall come round and collect it.

APPENDIX 3.1

DEPARTMENT OF COMMUNITY MEDICINE
UNIVERSITY OF GLASGOW
2 LILYBANK GARDENS
GLASGOW G12 8QQ

TEL: 041 339 8855 X4038

SUBJECT : HEALTH EDUCATION AND SCHOOLCHILDREN

Date: _____

Name of Respondent: _____

Teaching Commitment (i.e. what stage you teach & any additional duties): _____

_____

Name of School: _____

This questionnaire asks about the health education being taught to upper primary school children in your school; and about your attitudes to health education in general.

Your answers are confidential and will be used only in relation to the study on influences on children's health.

After you have completed the questionnaire please replace it in the envelope provided and seal the envelope.

Thank you in advance for your cooperation.

THIS STUDY IS FUNDED BY THE SCOTTISH HEALTH EDUCATION GROUP.

Q1. Have you taught any health education to your pupils so far this year?

Yes ☐ No ☐

IF 'YES' CONTINUE. IF 'NO' GO TO Q6.

Q2. What method(s) did you use to teach health education?

a) Incidental Teaching ☐
b) Centre of Interest / Project ☐
c) Followed your own school's structured health education scheme ☐
d) Another method (Please specify):-

Q3. a) What materials did you use for health education? (Please state all materials used including e.g. TV, health leaflets, books etc.)

---

b) Which of these, if any, did you use as your main resource?

Q4. Please try to estimate how much time you have spent teaching health education this year:-

< 5 hours (i.e. purely incidental teaching) ☐
5-10 hours (e.g.1 hr a fortnight for 1 term & incidental teaching) ☐
10-15 hours (e.g. 1 hr a week for 1 term, or 1 hr a fortnight for 2 terms, & incidental teaching) ☐
> 15 hours ☐

Q5. Which of the following health points did you cover? (Please tick all the points covered.)

a) Sex Education ☐
b) Drugs (apart from tobacco & alcohol) ☐
c) General Body Knowledge ☐
d) Safety and First Aid ☐
e) Alcohol ☐
f) Smoking ☐
g) Food and Nutrition ☐
h) Exercise and Rest ☐
i) Pollution of the Environment ☐
j) Relationships ☐
k) Safety and the Out-of-Doors ☐
l) Hygiene and Cleanliness ☐
m) Growth and Development ☐

Q6. Do you **intend** to teach any health education between now and the end of the school year?

Yes ☐ No ☐

IF 'YES' CONTINUE. IF 'NO' GO TO Q11.

Q7. What method(s) do you intend to use to teach health education?

a) Incidental teaching ☐
b) Centre of Interest / Project ☐
c) Follow your own school's structured health education scheme ☐
d) Another method (Please specify):-

_____

Q8. a)What materials do you plan to use for health education? (Please state all materials to be used including e.g. TV, health leaflets, books etc)

_____

_____

_____

_____

(contd)

Q8. b)Which of these, if any, will you use as your main resource?

Q9. Please try to estimate how much time you will spend teaching health education between now and the end of the school year:-

< 5 hours
(i.e. purely incidental teaching) ☐
5-10 hours (e.g. 1 hr a fortnight for 1 term & incidental teaching) ☐
10-15 hours (e.g. 1 hr a week for 1 term, or 1 hr a fortnight for 2 terms, & incidental teaching) ☐
> 15 hours ☐

Q10. Which of the following health points do you intend to cover in that time? (Please tick all the points to be covered.)

a) Sex Education ☐
b) Drugs (apart from tobacco and alcohol) ☐
c) General Body Knowledge ☐
d) Safety and First Aid ☐
e) Alcohol ☐
f) Smoking ☐
g) Food and Nutrition ☐
h) Exercise and Rest ☐
i) Pollution of the Environment ☐
j) Relationships ☐
k) Safety and the Out-of-Doors ☐
l) Hygiene and Cleanliness ☐
m) Growth and Development ☐

Q11. Is there anyone else who has been, or who will be, involved in teaching health education to your Primary 7 pupils?

Yes ☐ No ☐

IF 'YES' CONTINUE. IF 'NO' GO TO Q15.

Q12. Who is this person? (What is his / her job?)
Please list all the people involved in health education with Primary 7:-

---

Q13. What health education topics are covered by this person?
(If more than one person is involved please indicate the areas covered by each person.)

Q14. Please try to estimate how much time is spent teaching health education to Primary 7 children by someone other than yourself:-

< 5 hours ☐
5-10 hours ☐
10-15 hours ☐
> 15 hours ☐

Q15. In your opinion, what order of priority is given to health education in this school?

Not important ☐
Not particularly important ☐
Neither important nor unimportant ☐
Quite important ☐
Very important ☐

Q16. In your opinion, what priority should be given to health education in this school?

Not important ☐
Not particularly important ☐
Neither important nor unimportant ☐
Quite important ☐
Very important ☐

Q17. The following is a list of health topics relevant to children of upper primary school age. Please rank them in order of importance.
(Use a scale of 1-13, where rank 1 is the most important.)

a) Sex Education	
b) Drugs (apart from tobacco and alcohol)	
c) General Body Knowledge	
d) Safety and First Aid	
e) Alcohol	
f) Smoking	
g) Food and Nutrition	
h) Exercise and Rest	
i) Pollution of the Environment	
j) Relationships	
k) Safety and the Out-of-Doors	
l) Hygiene and Cleanliness	
m) Growth and Development	

Q18. The following is a list of opinions which have been expressed about the topic of children and smoking. We would be interested to know what you feel on this matter.

For each sentence please circle the relevant number, from 1 to 5, to indicate if you strongly agree, agree, are neutral, disagree, or strongly disagree.

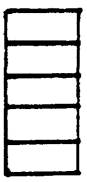
	strongly agree	agree	neutral	disagree	strongly disagree
	1	2	3	4	5
I feel that the prevention of children's smoking should be left to parents.	1	2	3	4	5
I feel that schools should take the responsibility for preventing children smoking.	1	2	3	4	5
I feel that schools and parents should cooperate in the prevention of smoking among children.	1	2	3	4	5
I feel that adults should set an example to children by not smoking themselves.	1	2	3	4	5
I feel that the government should take more action to prevent people smoking.	1	2	3	4	5

Q19. In your opinion what order of priority is given to smoking education in this school?

- Not important
- Not particularly important
- Neither important nor unimportant
- Quite important
- Very important

Q20. In your opinion what order of priority should be given to smoking education in this school?

- Not important
- Not particularly important
- Neither important nor unimportant
- Quite important
- Very important

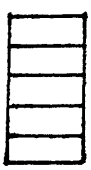


Q21. Which of the following best describes you?

- A person who has never smoked
- A person who has smoked but gave up
- A person who smokes occasionally
- A person who smokes regularly

Q22. In which of these age-groups do you fall?

- 20-25
- 25-35
- 35-45
- 45-50
- over 50



THOSE WHO HAVE NOT AND WHO WILL NOT BE TEACHING <u>ANY</u> HEALTH EDUCATION DURING THIS ACADEMIC YEAR PLEASE FINISH HERE.

Q23. The following are a list of health education materials. Please indicate which material(s) you have used and intend to use during this academic year.

	Have used	Will use
a) Education for Healthy Living (Pink Booklet produced by SRC Glasgow Division)	☐	☐
b) Schools Council (Published by Thinkwell)	☐	☐
c) Jimmy on the Road to Super Health (Cancer Research Campaign)	☐	☐
d) Good Health (Published by Collins)	☐	☐
e) Billy Hughes (SRC Glasgow Division)	☐	☐

Q24. For each material listed in Q23 that you will have used by the end of this academic year please answer the following questions:-

(1) Name of material _____

(2) How long have you been using it?

a) in this school _____ years

b) elsewhere _____ years

(3) Were you trained in the use of this material?

Yes ☐ No ☐

(4) Why did you chose to use this material for your health education teaching?

_____

_____

(5) What do you think are the advantages of this material?

_____

_____

- and the disadvantages?

---

(6) Do you follow the course completely as it is written?

Yes ☐ No ☐

If 'no', which components of the material do you use?

---

(7) In your opinion, how receptive are your pupils to the health education taught from this material?

Very enthusiastic ☐
Enthusiastic ☐
Neither enthusiastic nor unenthusiastic ☐
Unenthusiastic ☐
Very unenthusiastic ☐

Q24, PARTS (1) TO (7), IS REPEATED ON THE NEXT PAGE TO BE COMPLETED BY THOSE USING MORE THAN ONE HEALTH EDUCATION MATERIAL.

If you have any comments on this questionnaire please write them in the space below:-

---

THANK YOU VERY MUCH FOR YOUR COOPERATION

Q24. (1) Name of material _____

(2) For how long have you been using it?

a) in this school _____ years

b) elsewhere _____ years

(3) Were you trained in the use of this material?

Yes ☐ No ☐

(4) Why did you chose to use this material for your health education teaching?

_____

_____

(5) What do you think are the advantages of this material?

_____

_____

- and the disadvantages?

_____

_____

(6) Do you follow the course completely as it is written?

Yes ☐ No ☐

If 'no', which components of the material do you use?

_____

_____

(7) In your opinion, how receptive are your pupils to the health education taught from this material?

Very enthusiastic ☐
Enthusiastic ☐
Neither enthusiastic nor unenthusiastic ☐
Unenthusiastic ☐
Very unenthusiastic ☐